COTTON

with which is combined

BOSTON JOURNAL OF COMMERCE AND TEXTILE INDUSTRIES and SOUTHERN MILLS.

Vol. 75, No. 3. ATLANTA, GA., JANUARY, 1911.

PUBLISHED MONTHLY BY

COTTON PUBLISHING COMPANY

ATLANTA, GEORGIA, U. S. A.

CHICAGO, NEW YORK, BOSTON, TORONTO, CANADA PHILADELPHIA, CLEVELAND, O.

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SUBSCRIPTION RATES.

Domestic ..... Fifty Cents Per Year
Canada ..... $1.00 Per Year
Foreign ..... $2.00 Per Year

Complaints of failure to receive Cotton regularly or of errors of any nature relating to subscriptions should be promptly made to the publication office in Atlanta.

Orders for any change in advertisements must reach Atlanta previous to the 15th of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

Entered at Atlanta Postoffice as Second-class Matter.

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SOUTHERN COTTON MILL MERGER.

The announcement by Lewis W. Parker, of South Carolina, of a plan to consolidate the nine cotton mills with which he is connected, constitutes one of the most important steps taken in the textile industry in the South for many years. Application has already been made to the Secretary of State of South Carolina for the incorporation of the Parker Cotton Mills Co. to be capitalized at $5,000,000, the petitioners being Lewis W. Parker, Thomas F. Parker, H. W. Haynesworth, David J. Jennings, J. H. M. Beaty and M. L. Marchant. The cotton mills included in the merger are Victor Mfg. Co., Greers, S. C., 60,000 spindles; Monaghan Mills, Greenville, S. C., 60,000 spindles; Apalache Mills, Arlington, S. C., 20,000 spindles; Greers Mfg. Co., Greer, S. C., 10,000 spindles; Olympia Cotton Mills, Columbia, S. C., 100,000 spindles; Granby Cotton Mills, Columbia, S. C., 27,000 spindles; Richland Cotton Mills, Columbia, S. C., 26,000 spindles; Capital City Mills, Columbia, S. C., 15,000 spindles; Beaver Dam Mills, Edgefield, S. C., 10,000 spindles.

Mr. Parker outlined the merger plan to the stockholders of the different mills at a meeting on December 12th at Charleston, S. C. The proposition had the approval of the stockholders, although no official action was taken by the stockholders. The executive management of the new corporation will be as follows: President, Thomas F. Parker, President of the Monaghan Mills, Greenville, S. C.; Vice-Presidents, M. L. Marchant, President and Treasurer of the Victor Mfg. Co., J. H. M. Beaty, Gen. Mgr. of the Granby Cotton Mills, Columbia, S. C., and David J. Jennings, Greenville, S. C.; Treasurer, Lewis W. Parker, Greenville, S. C.; Secretary, F. J. Inglesby, Sec. and Treas. of the Apalache Mills, Arlington, S. C.

This proposed merger represents approximately 360,000 producing spindles. Among other things, the merger is to enable a more systematic division of labor and responsibility between those connected with the various corporations. The productions from the various mills mentioned in the merger cover a considerable range, although the majority are on print cloths, some of which are made from yarns as high as number 80s. In explaining the merger, Mr. Parker mentioned that it was the intention of the management to gradually convert the product into even finer goods than are now being manufactured. The basis of conversion of the present stock of the different mills into the stock of the new Parker Cotton Mills Co. has not been made public, but an equitable basis will be made, based on the market value of the different stocks of the cotton mills included in the merger at the time of the formation of the new company. It is the intention of the management to work out all of the details of the consolidation and have the merger completely effected by the 1st of April, 1911.

TO STIMULATE CHINESE TRADE.

James B. Duke, president of the American Tobacco Co. and the Southern Power Co., and a large owner of cotton mill interests in the South, has recently come forward with a plan to market Southern cotton mill products in China upon a very unique plan, which is calculated to stimulate the flagging state of this trade at the present time. Owing to Japanese competition in China which has been built up by a systematic effort and co-operation of the Japanese government and bankers, the amount of business secured by Southern cotton mills of the United States in the Chinese empire shows a remarkable falling off, until now it has reached such a low figure that determined effort will be made to revive this business in that territory. The extent of this decrease is very forcibly shown by a comparison of the values of cotton goods exported to China during 1910 which amounted to approximately $4,500,000 against $33,500,000 in 1905. This falling off is also due in a measure to the price of American raw cotton, which has stimulated cotton production in China in recent years and has also increased her takings of cotton yarn from India.

Recognizing the tremendous contraction in cotton trade to China, Mr. Duke some time ago sent an expert to investigate conditions there, with special reference to cotton cloth, and the announcement of the plan to revive the Chinese trade comes as the result of the report from the expert to Mr. Duke.

The plan for merchandizing and distributing Southern cotton mill products is similar to the method employed by the American Tobacco Co. in distributing its products in the Chinese Empire. About 50 depots will be established in China for the distribution of the cotton cloth, and each depot will be under the management of a representative from the selling agency which will be formed, if the scheme meets with the approval of the cotton mills. It is understood that the mills which enter into the agreement will assign their productions to the selling agency, and the latter will allow the mills five per cent. profit for dividends and ten per cent. for depreciation. In case of an extra profit after commissions have been paid and the fifteen per cent. margin, the additional profit will be divided equally between the mills and the agency.

It is believed that a plan of such large scope could be undertaken by no better qualified person than Mr. Duke, as his unqualified success in organizing and directing the giant tobacco corporation has proved beyond doubt his ability as an organizer and executive. Not only that but as principal owner of the Southern Power Company which distributes electric current to 125 cotton mills, Mr. Duke is vitally interested in the prosperity and full time operation of these mills. And further than this, the large cotton interests of Mr. Duke make it necessary that the best possible distributing methods be employed to take care of the products of these mills.

The plan has received many expressions of approval from well known Southern cotton manufacturers, and all seem to be agreed that such a step is necessary in order to meet the energetic Japanese competition which in the past few years has proved to be so ruinous to American cotton goods trade in China.

DEMAND FOR AMERICAN GOODS.

The remarkable increase in foreign investments by United States capitalists has brought about the opening of general stores by these capitalists in Asia, Africa, South America, Central America, Mexico, Australia, New Zealand and on many islands of the Pacific and Atlantic. In this way the sale of American cotton products is being advanced in zones where they were unknown until recent years. One great mining corporation in New York keeps six large department stores outside of the United States, besides one in Arizona. These stores were originally built for the accommodation of their own help, mostly Americans, but as time went on, the stores sold to all comers. The same is the case as to big American buyers of rubber in Brazil and Africa who effect a great deal of business with American cotton cloth, bright hued calicos and cotton clothing.

One American mining concern in Peru in 1909 sold $250,000 of American fabrics of cotton and cotton clothing to its employees and to those of adjacent mines and cattle ranges. An American corporation in the meat and railroad business in South America lately opened a department store that has two buyers for American textile fabrics in the piece and made up into clothing. The great increase in the consumption of American textile products in Mexico that has marked recent years is almost wholly due to demands from Americans who started American stores to catch trade of Americans, but who have since branched out to get trade of the Mexicans.

There are few American mining corporations that operate foreign mines who do not buy largely in domestic cotton and woolen and other fabrics for sale in their mining zones and along the lines of their railways. A New York mining concern that started their first department store at the mines a few years ago with one bolt of unbleached and two of bleached cotton cloth, retailed in 1909, $750,000 worth of textile fabrics at their stores in Arizona. Where 5,000,000 Mexicans in their own country and in our States and Territories adjacent to Mexico, used to wear only European fabrics of cotton, they are now wearing mostly all American goods—white and colored—and they always give the preference to American manufactures of cotton.

A CHANGE IN COTTON'S STAFF.

The resignation of Henry W. Atkinson as Editor of COTTON, has just been announced. He begins the New Year with the Southern Mfg. Co., Athens, Ga., as textile engineer. COTTON and his many friends and office associates wish him much success in his new position.

L. L. Arnold, of East Greenwich, R. I., who succeeds Mr. Atkinson, is not a stranger to the South, as he was connected with bleaching, dyeing and finishing plants in the Southern States for many years in various capacities, and has also had a wide experience with textile operations in different parts of the country. He has become well known as a special contributor to the technical press and is thoroughly in touch with the present editorial policies of COTTON, which will be fully conserved under his direction.

The Relation of Cotton Exchanges to Cotton Mills.

BY LEWIS W. PARKER, EX-PRESIDENT AMERICAN COTTON MANUFACTURERS ASSOCIATION.
(*Reported expressly for* COTTON.)

A question most seriously affecting the cotton spinners of the world is that of manipulation of prices on the exchanges. I am most earnest in my views that there is today facing the cotton manufacturers of the country, as indeed has faced us for the past three or four years, a most serious menace consequent upon manipulation of prices on the exchanges of the world, and particularly in the New York Cotton Exchange. Now, I am not going to argue for lower prices. Coming as I do from the South, it would be unnatural. I have grown up among people who for years raised and sold cotton at prices which represented a bare living, and I rejoice with those who are now securing a fair, or even generous, return for their labor. Therefore I do not want to be understood as arguing for lower prices. All I do contend for is that the price of cotton, like other commodities, should be regulated by supply and demand, and not be subject to speculators.

LEWIS W. PARKER.

Consider the remarkable conditions presented this last season: Between January and August, barely eight months, the price of cotton on the Exchange fluctuated 7 cents a pound, whereas, living as I do amongst the producers, and knowing the prices the original seller secured, I can say in absolute assurance that, during the same period, the producer did not vary his price one-half a cent a pound from 15 cents. In other words, the producer had set his mind at 15 cents; whenever he secured that price he accepted it, and I am sure not one per cent. of the cotton in the South sold above 15 cents, even during the most extreme bull manipulation of the past season. Yet during the same period the price on the exchange fluctuated 7 cents a pound—from 13 cents in January to 20 cents in August. The 13 cents in January was just as much the result of manipulation as was the 20 cents in August. The cotton spinners in the United States should be just as much opposed to manipulation on the low side as on the high side, and they should stand for that sound doctrine of commercialism and economics—the law of supply and demand—which should govern the price of cotton.

I have no criticism to make at all of the agriculturist who in his own protection feels it necessary to hold his product. I rejoice in the fact that our farmer friends of the South are at last in that state of prosperity and independence which enables them to market their crop gradually and as their judgment dictates. The best condition will arise when the whole cotton crop will not be forced upon the market during two or three months, but will be marketed throughout the year; and you and I can feel that we are able to withhold purchase of cotton until spring, in the assurance that we will be able to secure our supply, paying to the producer such additional price as represents the carrying charge.

FLUCTUATIONS ON THE EXCHANGES.

Consider conditions on the exchanges for several years: Go back to 1903-4, which was known as the "Sully year." Cotton rose to 17½ cents on the exchanges, and yet during the same period the producer was securing at no time over 15 cents. We saw cotton on the exchange fluctuate from 17½ cents in February to about 9 cents in the summer. In the fall of that year, what happened? There had been an entire exhaustion of stocks, in the fall of 1904, as there has been in the fall of 1910, and therefore cotton opened up with reasonable prices—about 10 cents. Later, the crop was found to be in excess of 13,000,000 bales. Therefore, under downward manipulation of the cotton exchanges, brought about by excess sales—sales of what the sellers did not have—the bears seeking by unity of action to depress the commodity so that it would rule at around 5 cents a pound, they forced, and properly so, an organization on the part of the Southern farmers; and we saw before the close of the season cotton again react from about 6 cents, to which it fell on the exchange along in February, to 10 and 11 cents in July.

Now we may all as well face the facts—cotton manufacturing in the United States and to a great degree in the whole civilized world, has degenerated into pure speculation on cotton. If you or I are successful in purchasing and play in good luck, we are said to be good manufacturers, and at the end of the year we make our exhibit to our stockholders and show excellent profits. If, on the contrary, we, after studying the situation just as carefully, think it advisable not to buy and delay until a later period, when we get fearfully caught through manipulation, we make our report to our stockholers, and it is received in silence and we are characterized as unsuccessful manufacturers.

Today in the great mass of cotton products—not certain grades or specialties—cotton manufacturing has degenerated into a question of speculation. In the last four or five years, there have been few times when we could buy cotton on the day we sold our goods and expect thereby to make a reasonable profit. We, therefore, either have

to buy cotton in anticipation of an advance or sell goods in anticipation of a decline, and figure on covering later. If that condition is brought about by any natural law—by adversity to the crop or withholding of product from the market—we have to accept it, because it is natural; but if that condition is brought about by manipulation on the cotton exchanges, then I feel that it is your duty and mine to present to the people of the United States the facts and show the effect of this manipulation.

In a measure, all the cotton exchanges have been responsible for these conditions, but there is no question that the rules of the New York Cotton Exchange are more responsible than any other. I can not take the view that because you may not buy contracts on the New York Exchange you are not affected by these rules. You are just as much affected by them as though you bought every bale of your cotton on the exchange, because these rules in the end have a great influence on the price of the commodity. For instance, let us go back to last November: We were all selling our cloths at a reasonable profit; cotton was then selling at about 15 cents, and 64 x 64 — 38½-inch—5.15 standard print cloths at about 6 cents a yard. That allowed all of us a reasonable profit. Now, about November 6th or 7th there was read out from the rostrum of the New York Cotton Exchange an announcement which had an absurd effect, viz.: that the Government had found that the boll weevil had not done quite as much damage in Texas as expected. (The drought had already done the damage.) Upon that bare announcement, cotton was sent down 1½ cents a pound in nominal quotations.

The effect upon goods was immediate. Print cloths and other standard goods broke and it took the manufacturers' earnest, concerted action, including curtailment, for eight weeks to bring our goods back to a profitable basis, which we did early in January, 1910. What happened? Through concerted action, brought about through the union of large interests determined to sell the market in the confidence that they would be able to break the backs of certain bull speculators, a decline, unjustified by any condition, of about 3 cents a pound was forced about the middle of January. From that day to this, cotton goods have been irresponsive to actual conditions under which you and I have to buy our cotton. Why? Because the buyer of cotton goods thinks that present cotton prices will not last and that they will be subject to serious decline in the future, and therefore a man can not buy goods based on present prices of cotton. I do not pretend to argue that these prices will continue.

The crop may be well in excess of 12,000,000 bales, and the prices paid today may be most generous remuneration to the planter. At the same time, knowing as I do the feeling of the planter, I believe there will be a most earnest and serious effort to hold prices of spot cotton at present prices, and that fluctuations on the exchanges are not going to affect him, so far as his asking price of you and me is concerned. It will be months to come before you can expect to buy from the producer at any lower price than that now being secured by him. In the meantime, if there are serious fluctuations on the exchanges, you will have the price of cotton judged, not by the price you are forced to pay, but by the quotation on the cotton exchange.

In January last, the producer was receiving 15 cents a pound for his product. On the exchange, through manipualtion, the price had been forced to 16½ cents. Therefore, when the intermediate man bought spot cotton at 15 cents, what did he do? He hedged by selling short on the exchanges at a difference of 1½ cents a pound. A number of such hedges were made throughout December and early January. When, upon the break, you undertook to buy cotton, the intermediate man asked you 1 cent more than the exchange and he secured the profit. The result was that the producer was unable to market his crop at any price he would accept, and could not do so until the intermediate man had sold out his stock, which he had hedged. In the meantime, by the decline in price occurring in January, the price of our goods had been so seriously affected that standard goods like 64 x 64 — 38½-inch — 5.15 gradually declined from 6 cents to 4¾ cents a yard, although spot cotton remained practically the same throughout the season.

What are the causes which make and tend to that manipulation? I believe a large proportion of the members of the New York Cotton Exchange are earnestly and honestly desirous of consulting the interests of the spinners and producers; but a still larger proportion feel that in order to get business the speculative influences in the market must be considered, and that these are most interested in such conditions as make possible extreme fluctuations in price, inducing the hope, at least, of large profit.

The rules of the exchange do tend to manipulation. Consider some of them. The American Cotton Manufacturers Association more than five years ago began its work on this question. We felt the necessity of bringing forward the effect of these rules and impressing it upon the members of the Exchange. Therefore, we were not actuated then, nor now, by any question of high prices; but simply upon the view that there must and should be a parity between the price of the commodity itself and the price of that commodity on the exchange. We asked the exchange five years ago, and have repeated the request year after year since, sending committees before the members of the exchange, that, in order to prevent upward manipulation or squeeze, there be allowed a right to deliver in a number of points throughout the United States—take for instance Boston or Fall River. Deliveries could be made in Boston with New York freight allowance. You sell your cloths and I sell mine with New York freight allowance, we base our prices on New York quotations, and yet there is only a small percentage of our goods delivered in New York. Therefore, make the delivery on the basis of delivery in New York, but allow the delivery to be made at representative points, such as Fall River, Atlanta, Utica, Columbia or Memphis, with New York freight allowance. Under the rules of the exchange as to character and quality, you could absolutely prevent any possible squeeze, because you or I could from our own warehouses deliver such amounts on these exchanges that no man would take the risk of receiving all the cotton tendered. That is one way of preventing an upward squeeze.

The question of downward manipulation is just as important and has as great effect on business as upward manipulation, though possibly when it is downward we do not appreciate the fact of manipulation as we do when it is upward. Consider some of the rules: I took up on May 2nd, last, 5,000 bales of cotton on the New York Cot-

ton Exchange. I paid for this cotton then in hard cash, and was delivered what is known as a "pro forma" invoice, which simply said in effect, "We will deliver to you as soon as the classification committee can tell what it is, 5,000 bales of cotton." We don't know what it is; we charged you for good middling, possibly it may turn out good ordinary; if the latter, you will have to be paid something back. I did not receive all the cotton until the month of August. Week after week, month after month, I made request for the classification of the cotton, but not until August did I get all of it.

I received various grades, of various characters, according to what it pleased the seller to deliver, without regard to the grade invoiced. I lost interest and storage, and, although I knew what I was doing all the time, I said I would leave that cotton there until Christmas, if necessary, in order to show what the effect of one of the rules of the exchange was. I was told of one case where 100 bales of cotton was delivered to a certain buyer. When he came to receive the lot, there was hardly a bale of the 100 that was deliverable under the rules of the exchange; yet that buyer, having in view the saving of interest and storage, having shipped out the cotton, was told that his remedy was gone, no adjustment could be made, as the cotton had left New York before being passed upon by the classification committee. The seller is given every privilege to decide what grade he will deliver, and the rules fix months beforehand what the difference will be. It necessarily follows that he will deliver that which is least desirable under the differences. You will observe in the past there has been a sequence of relative prices due to these conditions.

There is an excess of price upon the exchange, with the effect of drawing cotton there, and, when there, within the next month or two there is a downward fluctuation because nobody wants to accept it. This depression continues until the depression is sufficient to put the cotton on the bargain counter, when the stock is worked off, and the game begins again. Your business and mine are thus most seriously interfered with and cotton manufacturers are made the football of speculators on the exchange. The solution of this question, as of the question of tare, is with the spinners of the United States, if they will act. The American Cotton Manufacturers Association have year after year sent a committee before the exchange to earnestly present the question. If that does not succeed, then I say there is only one thing for us to do, and that is to appeal to our senators and representatives to take such action in Congress as will prevent the use of the mails and telegraph lines to those exchanges, unless there is a reform in the rules.

There was passed by Congress last year a bill known as the "Scott Anti-option Bill." I had the pleasure of appearing before the Congressional committee, favoring the bill, and I favor it today, although Mr. Thompson, President of the New Orleans Exchange, accuses me of inconsistency because I said I was not wedded to that bill and yet favored it. I said and now say that bill will have its effect in preventing extreme speculation; although it will be far from an entire remedy of conditions on the exchange.

One of the things that prevents the buying of cotton goods to at least a reasonable extent and at a reasonable price is the constant fear of the buyer that if he buys based on 14 cent cotton it will break and somebody else will buy on 12 cent cotton, and he will be at a disadvantage. We must in some way bring the exchange prices in relation to actual prices, and, if necessary to do that, secure legislation—though the latter as a last resort. The Scott bill provides that before any telegraph service or before the use of the mails in transmission of orders on the exchanges, there must be an affidavit that actual delivery of the cotton is intended and actual delivery of the cotton will be accepted. Now, a man may change his mind afterwards, and if he honestly changes it he need not deliver or receive the actual cotton, though such delivery was intended, and the burden is thrown upon him to show that he did intend to deliver or receive. The bill is recognized by exchange members as affecting speculative business, but it will not affect legitimate business, as the man who wants a hedge is prepared to deliver, or receive. It will not affect our business, as we will be prepared to accept or deliver, but it will affect and seriously hamper the speculator, who is selling what he has not, or buying what he does not want.

As to Southern mill conditions, I will say that just now we are about as unhappy as we have ever been. Conditions are extreme and we can sell no goods at a profit. Everybody seems to have been against the cotton mills this year, Providence included. There seems to be an impression that cotton goods are high, which, as you and I know, is a wrong impression. If we can not prevent constant fluctuations in price of the raw material, and if there is to be a repetition of the conditions that existed last year, then most of us will be glad to get out of the cotton manufacturing business.

Owing to the efforts of the Tasmanian agent-general in London, a syndicate has been formed there and $219,000 capital subscribed, in addition to $97,330 underwritten by a Hobart firm, for erecting woolen mills in Tasmania. The total capital is to be $486,650.

It is proposed to erect in 1911 two mills, one at Launceston, in northern Tasmania, and one at Hobart, equipping them with the latest and most approved machinery, so that the goods can be produced at a minimum cost. One mill will make blankets, flannels, and Baltic cloth, etc.; the other, rugs, tweeds, khaki, etc. When working full capacity the mills will, it is estimated, employ 600 to 700 hands and produce about $289,320 worth of goods annually.

There are already three woolen mills in Tasmania, but these do not produce nearly sufficient goods to supply the Commonwealth of Australia, which annually imports $14,600,000 of woolen goods. So great is the local demand for Tasmanian woolens that it is expected to find a ready market in Australia for all the products of the new mills. Indicative of the demand for these goods it is stated that an order was sent from the mainland of Australia to the Tasmanian mills for 1,000 pairs of blankets, none of which could be furnished. Orders must be placed many months before they can be executed.

Experiments in cotton growing in the State of Tamaulipas, Mexico, have resulted so satisfactorily that planters there are very enthusiastic over the prospects of cotton becoming one of the most profitable crops of the State.

Labor Laws and Compulsory Education in the South.

(Contributed exclusively to COTTON.*)*

BY GARNETT ANDREWS, PRESIDENT NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS.

While it is manifestly true that education is the key note to success in every line of business, it is only within a comparatively recent period that the cotton mill owner of the South has become actively alive to the actual benefit to his own industry which will result from more general and perhaps more stringent regulation of laws touching the education of children. As a class, the average business man stands before the community as being a law abiding citizen, and the cotton mill man is no exception to this class. It is, of course, often difficult to observe the letter as well as the spirit of the law, especially regarding the employment of children under legal age, when even the most apparently authentic affidavits are falsely procured. But it is gratifying to note what is being done in the South as well as in other sections to prevent these violations of the law and at the same time to protect the child from being forced into positions of wage earning when it is not equipped for the stern struggle.

With this end in view, all States have passed laws regulating child labor of every kind, and it is of interest to observe that the South has made a concerted effort to strengthen the laws against child labor by accompanying these laws with adequate legislation that shall compel the child who is deprived of the right to work in the mill or factory to spend his time profitably within the walls of the school. There has been a strenuous effort made by the leading organizations of the State of Georgia, by its women's clubs, teachers' associations, and also by prominent religious bodies to induce the Legislature of the State to pass a Compulsory Education Law. With this end in view, some 20,000 pieces of literature were distributed, explaining and emphasizing the need of such a law, but the bill has not yet been passed, although its promoters still believe that it will become a law through the effort of some future legislature.

GARNETT ANDREWS.

The strong point to fight in passing a Compulsory Educational Law in the South is the race question. So many legislators would take the stand that the white population paying practically all the taxes would be forced to spend an abnormal amount on the negroes, away and beyond their proportion according to the amount of revenue derived from that race. It is my belief, however, that the time is shortly at hand when it will become apparent to all of us that one of the best solutions and the safest solution to the race question in the South is to give even the negro an elementary education.

At present, however, there is a child labor law in the State, which, if coupled with a proper compulsory educational law, would greatly facilitate the decrease of illiteracy. This law declares that no child under 14 years will be allowed to work unless it be able to read and write and has attended school long enough to have accomplished this end, and this law also applies to children under 18 who are likewise prohibited from working unless they can show some school attendance. To the conscientious mill owner the law has proven distinctly helpful, inasmuch as it aids him in procuring for his mill only the labor of such children as have received some educational training. Alabama, Florida, Louisiana, Mississippi, South Carolina, Tennessee, Kentucky, and Texas have all passed similar child labor laws, with the penalty imposed on parents for violating such laws varying in amount from $5.00 to $50.00. Each one of these laws provides for certain terms of schooling for the children, but such schooling is not enforced as a law, but rather as an educational requirement which may be met or evaded as the cupidity and ingenuity of the parent or the indifference of the mill owner may dictate. In Louisiana there is a woman factory inspector who endeavors to force the fulfillment of the law, and when such an inspector is broad enough and capable enough to regard all sides of the subject, much good can no doubt be accomplished by such means.

Another thing that we must take into very serious consideration is that since the old time method of apprenticeship to a trade for a certain term of years was abolished that no *quid pro quo* has been found or has been given to the younger generation for learning a trade. The old time skilled workman is seldom found. Most labor unions limit the number of apprentices taught in their lodges. Therefore, to remedy this we should have trade schools, manual training schools, and commercial schools of every character, so that the rapidly depleted ranks of the old time, thoroughly taught artisan, workman, and mechanic can be refilled by graduates of these schools. These schools should be broad in their character, and embrace the training of pupils in all mechanical arts and domestic science, as well as stenographers, bookkeepers, foreign correspondents, and salesmen, and so thoroughly equip the pupils that they would be readily fitted for the different spheres of life in which their paths might lie.

Laws restricting or regulating the labor of children and which turn them from the doors of the mill and the factory

to the dangerous play grounds of the streets, unrestricted by any supervision at all, is not a law which safeguards the future of the child or which insures a solid citizenship for the nation. Fresh air and outdoor exercise may be potent factors in the developing the child's body, but the moral life of a child reared on the streets while both parents are employed, let us say in a cotton mill, invariably suffers, and results in filling our prisons and penitentiaries more often than the mill child fills our hospitals. The recognition of this principle is growing; as evidence, the States of Arkansas, Kentucky, Maryland, North Carolina, Virginia and West Virginia have not found their child labor laws effectual in preventing illiteracy or even in keeping children under age out of the working industries. These States, therefore, have passed strict laws governing compulsory education, and so effectual have these laws proven not only in regulating the age of child labor but also in improving the efficiency of that labor when it is employed, that other States, notably, South Carolina, have, through the agency of private individuals established educational institutions for children in the outlying districts and near mill centers in order that the educational requirements of the law may be fulfilled, and also to aid the parent in providing education for the child with as small an outlay for equipment as possible.

I assert most emphatically that the abuses of labor in the cotton mill are growing steadily less; that the needs of the working man and woman as well as of the child are being better understood and better appreciated by the employer with each passing day. This consideration of the human element in the industrial field is a vital one and as applied to the cotton mill it is almost an acute problem. When it is recalled that the number of cotton spindles in the South has increased from 4,300,000 to something like 11,600,000 in a single decade, and that there are something like 135,000 persons employed in the mills during this same time, it will be readily seen to what an extent this present industrial problem has grown. Of these 135,000 employes, some 20 per cent. were children under 16 years and this fact entirely warrants the active co-operation of the mill owner with every principle of improvement which looks to the protection of the child.

Perhaps the greatest obstacle to rapid and radical reforms at the present time is that furnished by injurious and ignorant individuals who would rush into general and drastic laws against the employing of children everywhere and at all times, without due regard to special conditions or without consideration of the fitness or unfitness of the individual child or the conditions that surround him. In any contemplation of the relation of the employer to the employee this phase of the situation must have first and most careful attention; the labor unions seek to protect and safeguard the adult employee, and the average American citizen is himself so constituted that he is not liable to submit to unjust treatment at the hands of his employer, especially at the present time when it is possible for an expert operative to find a desirable situation in some other mills if the one in which he is employed does not suit his needs or requirements.

The mere fact of a man or woman being compelled to work, even within the walls of the cotton mill does not seem to me to be an occasion for unbounded commiseration; work is the salvation of the race, or as Carlyle puts it, "An endless significance lies in work; in idleness alone is there perpetual despair." And it is this latter state from which the cotton mill often rescues the poverty-stricken mill family whose resources are all negative and upon whom idleness is forced like an impenetrable pall. Ready money—actual cash—was almost an unknown thing to such families, hence when its attainment became possible because of the opening of the cotton mills in hitherto fruitless localities, naturally whole families rushed into the mill as a medium of rescue from the certain poverty and hardships engendered by uncertain crops which at best yielded but the barest subsistence. These people are accepted originally by the mills from sheer necessity. They are as a rule ignorant and untrained, but because they had reached adult development they could be taught; and the cotton mill became the school as well as the source of income.

Gradually many features of welfare work or social service as it is now being called, have been added to the regular cotton mill environment, and the adult operative has prospered under more favorable conditions than he ever knew before. But he was not content with merely coming to the mill himself and bring his wife and adult children; he soon found there was work for the young child too, and he was brought into the mill. We all know that the employment of young children in certain kinds of work, is an unmixed evil, and we know, too, that many kinds of work is bad for children even of a certain legally recognized age. I will go further even, and say that night work is always injurious, and that no young child, under say, 16 years, should ever be put on the night shift, and that such children when legitimately employed in a cotton mill should never be accepted until the employer has received absolute guarantee of the fact that this child has been given a certain amount of schooling. This statement is not made, I confess, wholely and solely from philanthropic reasons, but because of economic ones also. An untrained, undisciplined child is not a helpful adjunct in any branch of cotton mill work.

Hence, the employer, the business man, and the National Child Labor Committee will meet and do meet the altruistic philanthropist on the common ground of being united in an earnest desire to see a universal and rigidly enforced Compulsory Educational Law. But when parents of small children falsify in sworn statements, and when the child itself is trained to misrepresent facts, then it is difficult if not impossible to enforce a child labor law unless it is done through the medium of a compulsory education law. Such a law as this will prove the only absolutely effectual one in keeping the child out of the factory, the mine or the glass works. His parents may swear falsely as to his age, but he cannot make the child meet certain educational requirements if he has not already been taught the simple elements of knowledge. Such a law should cover 40 weeks schooling in the year, attendance during the specified time being continuous. The school curriculums should be so arranged as to provide certain practical features of training as will appeal both to the child and to the parent as offering compensation for the wages which are denied to it. Then, too, provision should be made for furnishing the child with books and even with clothes and food when needed, and also there should be a system of vacation schools or summer camps which will fill up for the child

the full year, thus keeping him off the streets during the entire time when he would otherwise have been employed in the cotton mill or some other manufacturing plant.

In speaking of Child Labor and the public schools in an address given before the Third Annual Meeting of the National Child Labor Committee Prof. Charles W. Dabney, Ph.D., L.L.D., President of the University of Cincinnati, says: "The normal child is filled with a love of activity; the desire to do things is continually stirring in him and seeking an outlet. . . . . The child wants to get into life to be where there is 'something doing,' and the trouble is that in too many of our schools there is 'nothing doing' to meet the active boy mind. What, then, have we to do as school teachers? Give them manual training? Yes, manual training is a very good thing as far as it goes. But we have to do more than that; we must put real industrial training in the schools, because we have nothing of that in the home or on the farm. . . . . We must provide opportunities for the development of the whole life of the child—not merely his intellect, but his physical and his moral being also."

No one realizes the truth of all this more than the employer of young boys and girls too. In my own factory I have some dozen boys employed in the very mechanical process of turning hose; they work rapidly and well, but when their energies seem to flag it is one of the habits of our superintendent to set them a given task which if performed in a certain time is rewarded by turning them out for a game of ball. The ball, the bat, and the glove are the property of the mill, and this use results in better work as well as in healthier and happier boys.

Now most women love flowers. The girls and young women in our mill have window gardens in almost every work room in the building during the winter, and we pride ourselves on the beauty of our outdoor flowers in the summer and spring. These are but extraneous adjuncts and would mean very little to our employees if they were insufficiently fed or were unsupplied with necessary toilet and sanitary facilities; but the giving of the latter in conjunction with the flowers and the sun light results in a cheerful and contented set of workers.

To return to the subject of compulsory education as an absolute solution of the child labor problem; this is no theory, but it has been proven a solution in many cities of the North and West and also in New England where there are thousands of children employed in the mills and factories. But the number thus employed under the legal age is growing steadily and gratifyingly less. When the school attendance is watched, its increase indicates the decrease of the child in the field of work. When the present child labor law now in force in Illinois was first enacted the statute carried, in a single week, 1,000 children out of the stock yards; later it took more than 2,000 out of the mines, and the percentage of child workers throughout the State decreased from 4.1 per cent. in 1904 to 1.9 per cent. in 1909, the first years in which the law went into effect. This law is one which requires an educational test for all children employed in working positions, and it also provides a place where such a test shall be made; so that the number of working children has been materially reduced, thus testing the efficiency of the law.

In an interesting article by Jane Addams, who has been called the "greatest living American woman," she says that "We (of Illinois) have the satisfaction of knowing that of the nearly 27,000 children who have gone to work in Illinois for the four years following the enactment of this law, each one has passed the literacy test. They have further all been weighed and measured, which may be an inaccurate test, but which affords, at any rate a guaranty outside of the parents word that these children have attained an average height and weight." Miss Addams has made a close and careful study of all conditions which would lead to an amelioration of the condition of the child and in her broad and wise philanthropy she also considers the condition of the parent.

Here in the South this latter condition is one that often perplexes and harasses the mill owner. If he is appealed to by a widow with small children who begs to be allowed to place some of them in the mill, and the law in Georgia rather tends to the granting of this plea, if the widow can furnish absolute proof of the truth of her assertions. "The law," you say, "may permit this, but what of the child thus forced to work at an age too early and thus shut off from the right to acquire an education which the State, the people and the very commonwealth itself owes him?"

Prof. Franklin H. Giddings, professor of Sociology of Columbia University, in an address entitled "The Social and Legal Aspect of Compulsory Education and Child Labor," says: "A very special difficulty and one that puts all our theories and our devices to the severest test is that which is presented by destitute families. The practical question which has to be answered over and over again is: Is it right to take a strong, over-grown 12 or 13 year old boy away from money-earning employment and force him to attend school when by so doing we compel a widowed mother to apply to private or public relief agencies for help, thereby making her and perhaps the boy also a pauper? The only answer to this question, consistent with the policy of compulsory education itself, is the proposition that in such cases adequate public assistance should be given, not as charity but as a right. If the restriction of child labor is desirable, if compulsory education is desirable, and if at the same time large families are desirable, the State must make up to the family at least a part of the income that the children could earn if they were permitted to enter freely upon industrial employments."

Such an attitude toward the problem has never been considered in the South, yet it is eminently a sane one and is being put into practice by the New York Child Labor Committee. Only the funds used to supply needy families in cases which have been examined and passed upon as worthy, are from the funds of the Committee and are contributed by individual subscriptions. Here, indeed, is a field for even the amateur philanthropist's budding talents and energies. Help for the poor families where the child labor is needed may well be said to be but a necessary adjunct to the protection of the child from labor of any kind where such labor is done because of the cupidity of the parent. I do honestly believe that such instances as the last named are rare; as a rule parents care for their children, and while they are often ignorant of any harm which may come to them from work, they are seldom willing to thrust the child into work at too early an age or under conditions unsanitary and unsafe. But when this does occur, it is from such conditions that the child should indeed be rescued and to speedily accomplish this rescue,

the mill owner will lend his personal aid if need be.

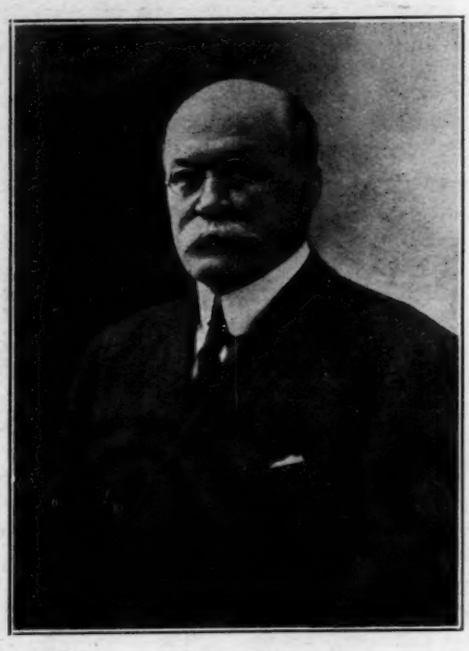
It is indeed a difficult situation to define fully in a short article, but I hope that I have at least made my personal position clear, inasmuch as I am as anxious for the betterment of my employees as I am for the success of my own business enterprises; and apart from all the sentimental reasons, I believe the thinking man will agree with me in my broad statement that the success of the enterprise in which both are mutually interested depends on the proper and kindly attitude of the employer to the employee.

The South and the Panama Canal.

(Contributed exclusively to COTTON.)

BY W. W. FINLEY, PRESIDENT SOUTHERN RAILWAY CO., WASHINGTON, D. C.

We are promised that, within the next four years, the dream of centuries shall be accomplished and ships shall pass from the Atlantic to the Pacific by a canal through the Isthmus of Panama. This new route will materially affect the course of a considerable part of the traffic of the world. By eliminating the long voyage by the Straits of Magellan or the transfer from ship to rail and from rail to ship at the Isthmus, it will bring the markets of the Pacific into closer relations with the manufacturing and commercial nations bordering on the Atlantic. The geographical relation of the Southeastern States to the Canal ought to bring to our Southern ports and to our Southern factories a large part of the benefits of this shorter way to the markets of the West Coast of Central and South America and of the Asiatic and Island ports of the Pacific.



W. W. FINLEY.

These markets are constantly increasing in importance. Formerly, unsettled political conditions interfered with and retarded the development of some of the Central and South American countries. Conditions in that respect have much improved in recent years. Under stable governments insuring protection to life and property and inviting the investment of capital, these countries are being developed and their purchasing power is increasing. In China, Japan, the Philippine Islands, and all the other markets of the Pacific to which the Canal will open a new route, civilization is advancing and the wants of the inhabitants are increasing. All of these countries are large users of cotton goods, and their demand for other articles that can advantageously be produced in our Southern States is constantly increasing. The Canal will give us a new, shorter, and more economical route from our Southern ports to their harbors. The Canal should, therefore, be of especial benefit to the manufacturers and merchants of our section.

But, we can not rely upon those benefits coming to us without exertion on our part. The rich prize of the Pacific trade will not come to us merely for the asking and because of our geographical advantage. We can have no advantage in the Canal itself for, although it is being built by Americans and paid for with American money, our government has pledged itself to keep it open on equal terms to the commerce of all nations. We shall have to fight for every dollar's worth of business that we get, and in every market where our merchants seek an entrance they will meet the active competition of shrewd and enterprising men from the industrial countries of Europe, and also from Japan, for the Japanese are not unmindful of their opportunities. They are making rapid progress industrially and can be depended upon to seek markets on both sides of the Pacific Ocean.

I believe, therefore, that we can not emphasize too strongly the importance of our people taking immediate steps to get into these markets. It will not do to wait until the Canal is opened. The merchant who hopes to build up a trade in any market of the Pacific and waits until ships begin to go through the Canal before making his first move will find himself seriously handicapped. It is not now too early for the people of our Southern ports to take active steps looking to the inauguration of direct and regular steamship service by way of the Canal, and for our Southern manufacturers and merchants to establish selling agencies in the Pacific markets. They will then be able, by the time the canal is opened, to make their goods known. They will know the people with whom they are dealing and their peculiar wants. Then, when the new route is opened, they will be in a position to take advantage of it in the largest measure, and to expand their business in every direction.

The field of Pacific trade, and especially of trade with the Central and South American countries, opens up an attractive field for the young men of the South. There are opportunities, I believe, for some of our young men to find success and profit in the Latin-American commercial field. They should, of course, acquire a perfect mastery of the Spanish language, and should study the business habits and the commercial usages of the countries in which they operate. They should also endeavor to put themselves as closely as possible in harmony with the social life of the people. This is a matter of particular importance in dealing with the Latin-American people. I think that, in some

instances, Americans are disposed to hold themselves socially aloof from the people of a foreign country with whom they are trying to do business, and are surprised to see a German or a Frenchman, whose goods may be inferior and whose prices may be no more favorable, transact the lion's share of the business.

I have directed attention to some of the difficulties in the way of building up trade in the Pacific, but I am confident that they are difficulties which our merchants and manufacturers can overcome. They can produce advantageously many of the commodities needed in those markets. They are to have the advantage of a shorter route. They should begin at once to place themselves in a position to take full advantage of their opportunity. They should study market conditions and the wants of their prospective customers closely, and, above all, they should send out some of our energetic and ambitious young men at once to push their goods and capture the markets in advance of the completion of the Canal.

A Permanent Basis of Southern Prosperity.

(Contributed exclusively to COTTON.)

BY CHAS. S. BARRETT, PRESIDENT NATIONAL FARMERS' UNION.

I should like to impress upon the readers of COTTON, many of whom are men of influence in their communities, the great opportunity that opens before the South if our farmers can be persuaded to raise upon their own acres those supplies essential to man and beast, and cease paying tribute for them to other sections. It is a natural assumption that all manufacturing classes are interested in the buying power, not only of the farmer but of every element in our population. The farmer will have more money to spend upon upon the products of the mills, upon the products of every industrial enterprise, if he has to send less money away from home for the necessities of life. That is the direct stake of the manufacturer, and the city man generally in the cause of diversification on Southern farms and the expansion of the home demand for cotton fabrics and other manufactured goods.

CHAS. S. BARRETT.

Among some of the less informed manufacturers, the fear has existed that the development of diversification on a large scale might lower the volume of cotton output. I entertain no fears that the Southern farmer, for many years at least, will not be able to furnish all the raw cotton our mills may require. I have more misgivings concerning over-production than under-production. And I am certain the latter will not be precipitated through a system that makes for intensive cultivation of cotton and extensive cultivation of home supplies, using the term "extensive" in its ordinary and not technical sense. Various humorists have suggested that the consumption of cotton goods be increased by adding an inch to the shirt-tail of the American or of the "heathen Chinee." The method has the advantage of directness but lacks feasibility. The simpler plan lies in increasing the buying power of the consumer.

Now, if we should keep in the South several hundred millions of dollars we send away for beef and pork, corn and wheat, we should certainly add to the buying power of the consumer, notably the farmer. Your readers can be of aid in this direction by exerting their influence in their respective spheres. Put more cash at the disposal of the farmer, hamper him less by debt, and he can buy more and better cotton goods and more and better goods of every description. He can add several inches to his shirt-tail, if he so desires, or divert his surplus into some more practical channel. I earnestly believe the widespread preaching of this doctrine will work miracles toward insuring prosperity in the South during the coming year.

The foundation is already well laid. Members of the Farmers' Union are turning to diversification in a degree almost magical. It will be relatively easy to secure results all along the line, given concerted effort and perseverance. Cotton is the substance granted the South by Providence to rear a wall against the effects of stringencies, and to break the force of panics. In a large number of instances, we now tear holes in the wall by mortgaging a great portion of the crop for the wherewithal to raise it. This is wrong, in economics and common sense.

How much better it would be if manufacturers and all Southerners exerted their influence to have cotton go on the market free of incumbrance! That would mean, annually, such a flood of gold to this section as would either divert "hard times" or mitigate their severity. Other factors—such as landlordism—enter into the equation. But if the combined sentiment of the South will aid the Farmers' Union in its efforts against these and allied evils, and if it will continue to discountenance efforts to discourage rural organizations, we shall see the dawn of permanent development and prosperity in this section.

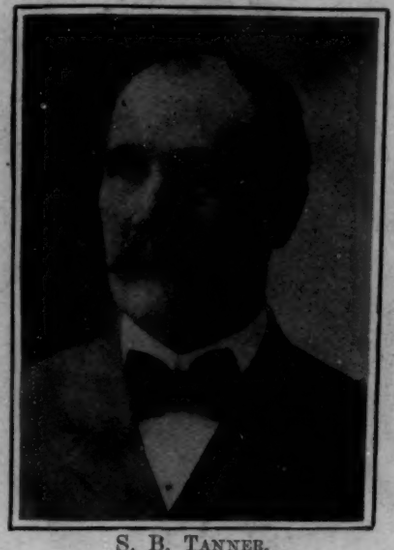
Receipts of cotton at Bombay, to date, are 300,000 bales behind last season. A total crop of but 2,500,000 bales is expected, against 3,200,000 last year, and local rates are high, but dealers are afraid to sell.

Cotton Mill Building in the South.

(Contributed exclusively to COTTON.)

BY S. B. TANNER, PRESIDENT HENRIETTA MILLS, CAROLEEN, N. C.

It is generally admitted now, I think, that the world has enough cotton mills, at least until the population increases and new markets are developed. When cotton mills were projected up to a few years ago, direct inquiry was first made for goods, which indicated a demand and justification for building cotton mills for supplying the markets. Mills were built with orders in hand before the foundations were laid; but later on when the trade was fairly well supplied and no definite arrangements could be made in advance for making any particular goods, prospective investors would build a mill exactly like his neighbors, because he had been successful. And then he did not succeed as well as his neighbor, because they were making too many goods of the same kind, and these conditions continued until practically all lines of goods were well supplied.



S. B. TANNER.

Later on, the matter of having a demand for goods was ignored, and communities and towns built mills for the purpose of building up the towns or sections in which they lived and to increase the population (mill building was attractive on this account, as they employed a great many people), regardless of the financial success of the enterprise. Many others were projected for the purpose of obtaining positions, etc., having very slight ideas as to what class of goods they would make and no knowledge whatever of the manufacturing business. But the latest addition reported along these lines is the builder of cotton mill machinery entering into competition with the cotton mills and taking payment for the entire equipment of machinery in stock, in order, it is supposed, to provide partial employment for the machine shops during the depression. It is believed by many that if these mills run full time they will have to use the machine shop labor in order to run the mills, as the supply of labor is now inadequate for operating the present mills when running full capacity in this country, while they have a surplus of cheap labor in foreign countries.

At any rate, cotton mills have been built too rapidly for the past few years, and curtailment on a large scale was absolutely necessary. With the aid of short crops and higher priced cotton the curtailment has been sufficient to cause the trade to begin looking ahead and inquiring if the higher prices of cotton and necessarily much higher prices for goods, are not coming to stay for some time, for a number of reasons. For example, the Secretary of Agriculture in his report for the year 1909 says the average price of cotton was 13.07 cents a pound, and that "compared with the average of the preceding five years, every one of the crops was larger, except cotton, flax seed and cane sugar," which is significant. In showing the percentage of increase in prices of certain staple commodities, cotton is the lowest, except hay, as follows: "Potatoes, 192.4; wheat with 166.2; rye, 162.1; buckwheat, 161.9; tobacco, 161.4; barley, 147.3; cotton, 138.4; hay, 122.9." He gives hogs at 202.3; horses, 228.8, and writes as follows: "The general fact is, that in the upward movement of prices since 1896, the products of the farm have fared better than any other class of commodities. "And still the world cries out, especially against the price of cotton, and demands cotton goods based on 10 cent cotton.

Secretary Wilson says further, "Cotton is now by far the second crop in value, and this year's crop is easily the most valuable one to the farmer that has been produced. No other cotton crop since 1873 has been sold by farmers for as high a price per pound as this one." And the indications are that the present crop will sell still higher.

Another significant quotation from Secretary Wilson: "Advatageously situated as he is in most respects, the farmer is less and less generally compelled to dump his crops on the market at time of harvest. He does not need to work for his board and clothes, as he often did in the former time when prices were as low as to be unprofitable." Cotton is certainly fixed on a higher level, and must be for some time, even if the 1911 crop should be a large one, as the cotton planter has learned to make sure of producing his bread at home, so that he can hold his cotton if necessary. Cotton goods must of necessity seek a very much higher level, as the old stocks have dwindled away and goods are much too low for the higher level firmly established for cotton.

The Railroad Commission of South Carolina on December 29th reduced the rates on cotton piece goods from Spartanburg, Greenville and Columbia groups of mills to Charleston, S. C., by approximately 20 per cent. The new rate goes into effect March 6, 1911. The rate from Columbia on cotton piece goods was reduced from 22 cents a 100 pounds to 18 cents. The rates from the Spartanburg and Greenville group of mills was reduced from 30 cents a 100 pounds to 24 cents. Over 110 textile plants of the State several months ago petitioned for a commodity rate of 20 cents on carload lots and 22 cents on all other shipments of cotton goods from South Carolina mill points, embracing the Greenville group and the Spartanburg group to Charleston; and a commodity rate of 16 cents on carload lots, and a like rate of 18 cents on all other shipments of cotton goods from the Columbia mills to Charleston, as basal points to Charleston, making a tariff of rates from other mill points in the State to Charleston upon this basis.

The Cotton Mill Village of South Carolina.

(Contributed exclusively to COTTON.*)*

BY THOMAS F. PARKER, PRESIDENT MONAGHAN MILLS, GREENVILLE, S. C.

The cotton mill villages of South Carolina contain approximately one-fifth of the white population of the State, or in round numbers 150,000 persons; while in the three principal manufacturing counties, Greenville, Spartanburg and Anderson, about one-third of the white population live in mill villages. As a rule these villages are separate communities; one village sometimes having as many as 5,000 inhabitants. In the selection of a mill site the promoters select a situation best adapted to the needs of the mill, and the village is then laid out in close proximity thereto, and is owned and governed by the mill.

An observer unacquainted with the previous habitations of the majority of Southern cotton mill operatives is apt to attribute their poverty to the mill; but a native of the South knows that this is a legacy of war and slavery, which the mills are steadily overcoming by offering much better labor and living conditions to their operatives than they had in their isolated farms and cabins.

The radically new influences of village environment will necessarily produce on this population a marked change in the next generation. Whether this change shall be for better or for worse depends on the character of the influences; and the development in villages of potentialities for good, and the control of those for evil, constitutes a problem vitally affecting the State at every point, political, religious, financial and social; and there should be brought to the solution of this problem modern and scientific methods of investigation and of systematic organization. These mill villages which afford separate cottages with plenty of air and large grounds offer healthier living conditions than the city tenements generally used by cotton mill operatives in the East, but from their very nature their inhabitants are dependent on the corporations to a greater extent than in New England where the large cities furnish many helpful agencies.

THOMAS F. PARKER.

These mill people, composed of the poorest white people in the State, when coming to the mills, leave their homes and friends, and find themselves among strangers and surrounded by conditions entirely new to them, and therefore appeal strongly to one's sympathies; especially the young boys, and "little mothers" (girls from ten to fourteen years of age) who in the village so often do the housekeeping and care for the younger children. These new operatives, as they arrive at the mill, are illiterate and otherwise untaught, but possess good physical and mental ability, and when stimulated to use these quickly develop in character, intelligence and efficiency. Too little careful thought and constructive effort has been given in the past to bettering the living conditions of the operatives, for in these villages where the manufacturer and adjoining communities have irresistible power in some directions and a strong influence in others, the possibilities and responsibilities are great. The young boys and girls of any community or country are unquestionably its most valuable assets to be trained wisely, and not to be used wastefully; and to be saved and developed for their future good and that of the State, as well as to be profitably employed during their younger years.

Let us consider the agencies for good which are at work in these villages and see if they are of a character calculated to improve these people in a way which will be an advantage to manufacturing and to the South. Their preachers as a class are at the present time known to be the least educated and efficient in their denominations; (of course, there are some exceptions) and they are not qualified to earn at any occupation more than the salaries which they receive of from $600.00 to $800.00 a year, and perhaps a parsonage. Village school teachers are usually engaged who can be secured for a salary of not over $360.00 a year, which is but little more than the amount earned by an average mill hand (including children) who is paid $1.10 per day or at the rate of $336.00 a year. This teacher has often fifty or many more scholars, and these very poorly graded, and is left to her own resources without the help and guidance of any State or county supervision worth taking into consideration. The physicians who practice in mill villages number a few of the best and many of the worst, the latter class make a specialty of the villages because they can not practice elsewhere.

While all the villages have school and church buildings, the value of these depends very largely upon the efficiency of the instruction given in them. Without competent teachers and the active and earnest support of the mill authorities these institutions perform their functions no better than a mill with antiquated and useless machinery. It requires an intimate knowledge of these people to realize the extent to which, as a result of their former isolation and lack of advantages, they have to learn even the most elementary rules of living and behavior which would ordinarily be taken for granted as the common knowledge of every one. In the matter of amusements also few if any of the manufacturing villages of the world are more destitute than those of the South where usually there is nothing to do

outside of the mill but "hang 'round" the house or store and occasionally attend church or a meeting of a fraternity. Under these conditions an effort has been made by mill managements to improve conditions and some ten mills in South Carolina have undertaken considerable betterment work in their villages; and though no mill has made an average annual outlay of as much as one per cent. of its capital stock on welfare work, yet the work of the mills above referred to has for sometime attracted considerable attention in this State and elsewhere.

This welfare work has been the gradual outgrowth of the efforts of the corporations to meet local needs by the employment of trained workers; and mill presidents have devoted considerable personal effort to furthering the work. Back of the movement has been a genuine desire to help the operative, and methods have been found alike profitable to employees and employers. The principal agencies used in this work are medical dispensaries, with loan closets and rooms for surgical operations and baths, all under the supervision of a trained nurse, whose duties also include the teaching of a Health Club and district nursing; Club Houses are provided for men and women which are well equipped as social and educational centers with gymnasiums, baths, class rooms, etc., and are under the management of competent secretaries.

There are well regulated savings banks; libraries with competent librarians; nursery kindergartens and day nurseries; parks with swimming pools for men and women, and splash pools for children; cooking and sewing schools taught by thoroughly prepared teachers; night classes in elementary studies for both sexes, and in mill calculations, textile designing and mechanical drawing for men. There are also debating clubs, literary societies under competent leadership; and well organized village fairs. To the club houses of one village of 1,500 inhabitants there were over 47,000 counted visits in twelve months, and its welfare workers paid and received over 8,000 visits. Over 14,000 baths were taken and more than 2,000 books were carried home from its libraries.

There are some promising lines of welfare work not yet attempted; among which are systems of long service premiums, and of sick and death benefits to employees of standing. These incentives, if properly worked out, would serve useful purposes in addition to preventing unnecessary moving by operatives from mill to mill. A number of such systems have been successfully introduced elsewhere by practical corporations, a notable example being a system introduced by the United States Steel Corporation.

In coming years it is to be hoped that all South Carolina's 150 villages will contain some of the betterment agencies above described paid for by mill corporations, and also memorial buildings built by Directors and large stockholders as monuments to Southern big-hearted generosity and to the genuineness of the good will of stockholders and direcors to the "men behind the guns" and their families, who, according to their ability, have often helped in the fight which brought honor and profit to the company and to the State.

In the vicinity of Columbus, Tamaulipas, cotton was grown this season for the first time. Special seed was imported from Georgia. The production was one bale, and in some cases more, per acre. No trouble was experienced with the boll weevil.

MANUFACTURING COSTS ON COTTON GOODS.

The report of a recent investigation by Lockwood, Greene & Co., Boston, Mass., on the possibility of the profitable running of three textile plants belonging to one large corporation, either as a whole or separate units, contains some interesting manufacturing cost figures on various cotton products. In this discussion, the properties will be designated as plants Nos. 1, 2 and 3.

No. 1 is arranged for the manufacture of denims and coverts. The yarns used vary from 8½s to 13s.

Plant No. 2 was originally organized and arranged for the manufacture of jeans, and later for chambrays, plaids, pin checks, cassimeres and cotton rope. As at present arranged and operated it can never be a success. If put wholly on cotton goods, a re-arrangement of machinery should be made, requiring a considerable outlay of money.

Plant No. 3 is arranged to produce sheetings, shirtings, drills, osnaburgs, light ducks and chambrays. The yarns vary from 5s to 25s; an average of about 15s, or a somewhat finer product than that of the mill No. 1. Should it seem desirable to put this mill on finer numbers, a re-arrangement could be made without great additional expense.

As arranged at present, the total yearly production of these plants is approximately as follows: No. 1, 2,900,000 pounds of cloth; No. 2, 1,600,000 pounds of cloth and 225,000 pounds rope; No. 3, 3,500,000 pounds of cloth and 25,000 pounds rope. The actual average manufacturing cost per pound and the percentage of distribution in the various departments were found to be as shown in the accompanying table.

	Plant No 1	Plant No 2	Plant No 3
Total Mfg. Cost Per Lb.	3.64¢	6.84¢	4.43¢
Lapper Room	2.8%	1.9%	2.4%
Card Room	20.0	9.1	18.1
Spinning and Spooling	28.0	33.6	25.5
Warping and Slashing	5.4	9.4	6.2
Weaving and Drawing	36.0	41.0	44.2
Finishing	4.4	5.0	3.6
Dyeing	3.4	---	----
	100.0%	100.0%	100.0%

The above figures represent an average covering a period of one year, during which time the net average prices received after deducting all discounts, commissions, freights and all other charges, were as follows: Plant No. 1, 18.98 cents a pound; plant No. 2, 21.80 cents a pound; and plant No. 3, 18.34 cents a pound. The value of an investigation which shows a corporation or manufacturer exactly where he stands, as regards the profits and losses of his various properties, is obvious. It will be noted here that with cotton above 12 cents, the margin of profit would be very small, and in the case of No. 2 plant with its small production, would possibly mean at least that no money was being made and that possibly this plant was being operated at an actual loss. Taking the above figures as a basis plans for the re-organization and re-arrangement of all the mills so as to put them on a paying basis were recommended and devised. In a word, plans were developed for economizing the methods of manufacture and for "balancing" the entire organization.

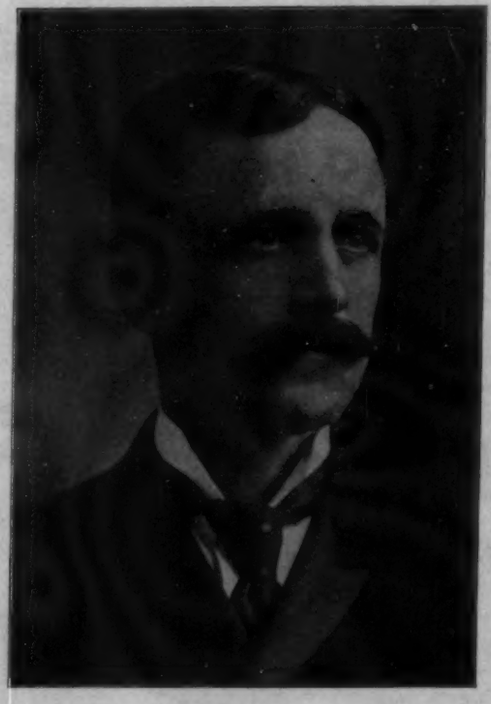
The Cotton Crop of 1910.

(Contributed exclusively to COTTON.*)*

BY HARVIE JORDAN, ATLANTA, GA.

The cotton crop of 1910 has again proven a disappointment to production in the Southwestern sections of the cotton belt. The expectation of a large crop for 1910 to fill out the depleted stocks left over from the very short crop of 1909, has likewise been a distinct disappointment to the spinners and manufacturers of American cotton, both in this country and in Europe. Since 1898 there has been one large yield every other year until the present season of 1910, which gave on the average, sufficient supplies of raw cotton to meet the normal demands of consumption.

It will be interesting at this time to compare the production of American cotton for the past two decades, showing the average percentage of increase in production for the two 10-year periods, and also the percentage of increase in the average planted to cotton for the same time. For the first 10-year period, from 1890 to 1899 inclusive, there were produced 89,472,000 bales, and for the last 10-year period, from 1900 to 1909 inclusive, a total of 113,662,000 bales, or an increase in production of the last decade over the first of 27 per cent. In 1890, there was planted 20,000,000 acres in cotton and in 1909, a total of 31,000,000 acres; an increase for the 20-year period of 55 per cent. in the cotton acreage. These figures indicate conclusively that increased acreage does not mean increased production. Since 1898, the average yield of lint cotton per acre has been reduced from 240 pounds that year, or practically half a bale per acre, to 165 pounds, or one-third of a bale to the acre in 1909; and the production for 1910 is not likely to exceed one-third of a bale per acre on the average.



HARVIE JORDAN.

Prior to 1890 statistics indicate that the average increase in production doubled the yield about every 25 years, but for the past 20 years we have been unable to maintain that record. The conclusion to be reached from these figures, therefore, is that production is not keeping apace with either the increase in acreage, or the demand for consumption as will be shown later on, made imperative by the natural increase in the world's population depending upon American cotton for clothing.

IMPROVED METHODS IN FARMING.

Undoubtedly Southern cotton growers as a rule, have within the past ten years adopted and applied improved cultural methods in the preparation of the soil by better tillage, and in the culture of the crop from planting to harvest. There has been a heavy increase in the application of commercial fertilizers, and a much wider distribution and use of carefully selected and improved varieties of cotton seed for planting.

The effort has been made energetically by the cotton growers of the South to increase the yield of lint cotton per acre in order to offset the higher cost of labor and the supplies which now enter as important factors into the cost of producing a pound of cotton. There are many notable instances in which this has been successfully done by individual planters, but notwithstanding these strenuous efforts they have not been as a whole satisfactory.

The only large cotton producing States which have succeeded in maintaining an average yield of lint cotton per acre for the past ten years, have been the two Carolinas, Georgia and Alabama. The States of Mississippi, Louisiana, Arkansas, Texas and Oklahoma have fallen off in percentage of yield per acre of lint cotton very materially within the past few years.

It will be of interest to note the average yield of lint cotton per acre by States for the past ten years, and then show the losses in this average for the past few years by those States infected with the Mexican boll weevil.

Following is a schedule by States, indicating the average yield of lint cotton per acre for a period of ten years, from 1900 to 1909 inclusive:

North Carolina ....248 pounds.
South Carolina ....216 pounds.
Georgia .....190 pounds.
Alabama .....190 pounds.
Mississippi .....213 pounds.
Louisiana .....237 pounds.
Arkansas .....202 pounds.
Texas .....175 pounds.
Oklahoma .....217 pounds.

Texas shows decidedly the lowest average yield per acre, as that State has been under the influence of the ravages of the boll weevil for the entire period noted in the calculation. Up to 1907 the average yield of lint cotton per acre in Louisiana was fully 250 pounds, but in 1908 this average was reduced to 155 pounds, and in 1909 to 145 pounds. The ravages of the boll weevil began to show its destructive influences in that State in 1907. In 1909 the weevil had invaded a considerable portion of the rich Delta lands of Mississippi, and cut the average of that State from 213 pounds to 168 pounds per acre. In the last five years the average yield of Arkansas has been reduced from 202 pounds per acre to 196 pounds. Texas has gone backward

for the past five years from an average of 175 pounds of lint cotton per acre to 171 pounds. Within the past three years Oklahoma has been reduced from a 10-year average of 217 pounds of lint per acre, to 171 pounds, or to the same basis as Texas.

The old cotton States east of Mississippi have maintained their average yield up to the end of the 10-year period largely because the boll weevils have not yet invaded that territory. The Government experts state, however, that the weevil crossed over from Mississippi into southwestern Alabama in the summer of 1910. Within the next seven or eight years we may confidently assume that the weevils will have fully invaded Alabama, Georgia and the Carolinas. The extent of damage to which the cotton area of the South Atlantic States will be subjected when lying at the mercy of this pernicious insect is, of course, a matter of conjecture, but if we are to judge by the recorded damages of the insect in Louisiana and Mississippi, the production of cotton in the old States will be very materially curtailed.

One thing is certain that the climatic conditions are far more favorable for the propagation and development of the weevils in the old States, and also for hibernating through the winter months, than in Texas. Notwithstanding the severe winters, open country and hot, dry summers in Texas, the invasion of the boll weevil in that State has reduced the yield of lint cotton per acre considerably lower than any other cotton producing State in the South, although the great prairie lands of Texas are far more fertile than the cotton area of the old States. While Texas plants about one-third of the cotton area of the South, she produced in 1909 only one-fourth of the crop, and this loss in production is largely attributable to the ravages of the boll weevil.

DAMAGES OF BOLL WEEVIL.

The boll weevils have practically destroyed the ability of farmers to grow cotton profitably in Louisiana. In 1906, before the invasion of the weevils, that State produced 1,000,000 bales of cotton. In 1907, with the coming of the weevils, the yield was reduced to 680,000 bales; in 1908, to 482,000 bales; in 1909, to 270,000 bales, and the estimated yield for 1910 is less than 240,000 bales.

In Mississippi which got well under the influence of the weevil in 1909, practically the same tremendous depreciation in production has been experienced. Perhaps the Government experts may be able to teach and induce the cotton growers to employ such cultural methods, and the planting of early maturing varieties of cotton, as may enable the South to maintain its normal production of cotton as the weevils continue their march of destruction across the cotton belt. But up to the present time the weevils certainly have the best of the situation, and the future does not look either bright or encouraging for the South to maintain its production of raw cotton, in sufficient quantities at least, to meet the annually increasing demand of consumption throughout the spinning centers of the world.

No insect known to science in any part of the world has proven so obstinate or difficult to control, nor one so destructive, as the cotton boll weevil. With the persistent co-operative efforts of the Federal and State Governments, backed by the farmers and commercial organizations of the South, it is to be hoped that methods will yet be introduced which will greatly minimize, if not entirely eradicate, the destructive forces of the boll weevil. Fortunately the splendid advance in the price of American cotton for the past few years, has been an incentive to thousands of farmers to continue unabated their efforts in the weevil infected areas and in the end win the fight.

CONSUMPTION OF AMERICAN COTTON.

According to the most authoritative statistics, the average annual consumption of American cotton by the mills of the world for the past four years, has been 11,650,637 bales per annum. The greatest consumption of any one year during that period was between the dates of August 31st, 1908, and August 31st, 1909, when consumption reached a total of 12,098,280 bales, the shortest consumption for any year during that period was for the 12 months ending August 31st, 1910, when only 11,145,178 bales were actually consumed. This does not take into account the total amount of American cotton which passed from the markets into spinners hands, because the records show that there was left in spinners hands on August 31st, 1910, a total of 1,123,826 bales of American cotton, indicating that spinners took a grand total of 12,269,004 bales during the twelve month period ending August 31st, 1910.

In view of this small stock of American cotton on hand, (the smallest in years), at the opening of September 1910, and the estimated short yield for the season of 1910-11, less than 11,500,000 bales, it is quite evident, if normal consumption is to be maintained for the next 12 months, that the supplies of raw American cotton will be depleted to uncomfortably low stocks before another crop can be harvested.

PRODUCTION AND CONSUMPTION.

The increase in the production of American cotton is not keeping apace with the increase of the world's cotton spindles. In 1907 the total estimated cotton spinning spindles of the world, were 114,096,168, and by the close of August 1910, there was an estimated total of 133,384,794, or an increase of 17 per cent in three years. The greatest increase by countries during that period was in Great Britain, which shows about 7 per cent gain, making Great Britain's total cotton spindles to date, 53,397,466. The total of American spindles at this time is 28,349,000. While this tremendous and unprecedented increase in the world's spindles was taking place during the short period named, there was a loss of over 2,500,000 bales in the production of American cotton for the three years of 1907-8-9, compared with the production of the three years of 1904-5-6, notwithstanding the fact that there was an increase of 7,000,000 acres in the years 1907-8-9 greater than that planted in 1904-5-6. Productions went backward while the number of new spindles increased tremendously.

While Great Britian has in operation a total of 53,397,466 cotton spindles, or nearly double the quantity employed in American mills, yet there is consumed in American mills 1,500,000 bales of cotton annually, more than are consumed in the entire spinning territory of Great Britian, as the following figures will show: Within the period from August 31st, 1909 to August 31st, 1910, Great Britain consumed in her mills a total of 3,053,545 bales of American, Egyptian and East Indian cotton, while the American mills consumed for the same period a total of 4,900,000 bales. The difference is even more marked when we come down to the exclusive consumption of American cotton. During the period above named Great Britain consumed in her mills 2,548,707 bales of American cotton, while the mills of America consumed during the same period 4,707,000 bales of American.

Indeed the cotton mills of the South located in the two Carolinas, Georgia, Alabama and Mississippi are annually consuming about as much American cotton as the long boasted cotton milling industries of Great Britain, although the latter has fully five times as many spindles as are located in the South. It must be remembered in considering these startling facts, that the cotton milling industry of the South has been developed since 1870, while Great Britain has been spinning cotton for the past 200 years, and her maritime cotton trade ramifies the civilized nations of the world. If the American mills would energetically cultivate and foster closer trade relations with other countries, as does the International Harvester Co., and other great industrial companies of like character in this country, it would give such an impetus to the building of new mills in the South and New England as would require the annual consumption of the entire American crop within the next two decades.

The American mills now annually consume 1,000,000 bales more of American cotton than the combined consumption of the cotton spinning mills of Germany, France, Russia, Austria, Italy, Spain, Japan, Belgium, Portugal and Canada, as the consumption of these countries of American cotton for the past twelve months did not exceed 3,700,000 bales.

TRAIN LABOR, DEVELOP RESOURCES.

With the development of the marvelous natural resources of the South in its magnificent water powers, the training of expert labor to spin and weave the finer grades of cotton textiles, and reaching out for the trade of other nations as Great Britain has done, the cotton milling industry of the United States can within a very short period of time be made to turn the entire supply of raw American cotton into the finished fabric for home consumption and export. This would tend to many times multiply the present annual value of our great staple crop and give renewed impetus to our industrial and financial life, more particularly in the South.

While Great Britain has practically twice the spindle capacity of American mills, it has also been shown that our mills consume a much larger quantity of raw cotton than those of Great Britain. This would clearly indicate that our own mills are chiefly engaged in the spinning and weaving of the coarser yarns and fabrics. This is due in part to unskilled labor employed in American mills, and to the comparative newness of the industry, especially in the South. American mills should therefore exert their utmost to induce the better training of mill help along more skilled lines, and as rapidly as possible inaugurate changes from the coarser to finer goods, thereby materially increasing the value and profit per pound of raw cotton passing through American mills.

The stride of cotton mill expansion in this country, and more especially in the South, has been phenomenal within the past 30 years, and even greater expansion should be made in the next quarter of a century. The same ratio of increase in American spindles and consumption for the next 25 years as has taken place within the past quarter of a century will call for an annual demand of 15,000,000 bales by American mills, which would consume all of our raw supplies unless Southern farmers better solve the question of production than has been the case in the last 20 years.

GROWERS BECOMING MORE PROSPEROUS.

The cotton crop of 1910 will sell in the aggregate for more than a thousand million dollars, and the distribution of this enormous sum of cash money among the cotton growers of the South will not only enhance their material welfare, but stimulate them to renewed effort in the rapid introduction of improved and better methods of cotton production. It will also tend to the wider adoption of a system of correct diversification of crops, which was made impossible under the former experiences of cheap cotton, and which yoked Southern farmers to the ruinous credit supply system for 40 years.

The great increase in the production of cereals, cattle, hogs and poultry in the South at this time is one of the brightest signs for our future prosperity in Southern farm life.

Southern farmers are coming back slowly, but surely, to that proud and independent position occupied by them 50 years ago, and with that independence of action and freedom from the granaries and smokehouses of the West, every department of our industrial and financial life in the South will share in a tidal wave of general prosperity whose foundation is based upon the sound and proper development of our marvelous agricultural resources.

In conclusion I desire to call attention to the fact, that the cotton crop of 1910 will pass into the hands of the spinners in the same old slipshod, antiquated and wasteful manner which has characterized its predecessors for the past half century. Notwithstanding the persistent demands of the spinners on the one hand, and the clamor of the growers on the other, for the introduction of economic reforms in the ginning, baling, handling and marketing of American cotton, progress in improvement goes forward slowly in the face of antagonisms by vested interests in the cotton trade of the South. Foreign and New England spinners annually appealing to cotton growers and ginners to prepare the bales for more economic handling and transportation and to reduce the present tare by the use of light burlap as a covering.

The demand for square bale gin compression, the net weight contract and better warehousing and handling of American cotton are all live issues at the present time. Economic reform in the handling and marketing of American cotton is what is needed under the stimulus of Twentieth Century progress in all other lines of industrial development. At the beginning of the New Year of 1911 let us all wish for both cotton growers and spinners the highest measure of success and prosperity during the coming twelve months.

In spite of the recent apparent depression in the cotton manufacturing industries, due in part to increased price of raw cotton without commensurate increase in price of finished product, it is interesting to note what Lockwood, Greene & Co., of Boston, engineers and architects for industrial plants, have to say in a recent report:

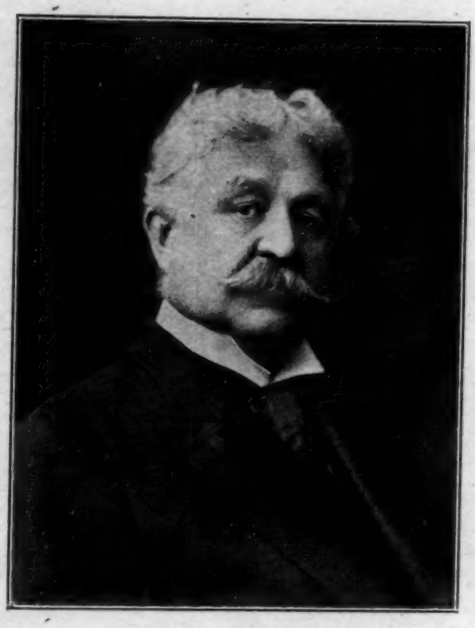
"The textile industry, as a whole, is one of the most stable in this country. Upon it the economic success of many communities is entirely based, and we believe that it shows less fluctuation, over a longer period of years, than any other industry. Added to this is the further fact that the per capita use of cotton goods is on the increase in this country, and especially is this true in the line of cotton knit goods."

Guaranteeing Cotton Bills of Lading.

(Contributed exclusively to COTTON.)

BY ROBERT J. LOWRY, EX-PRESIDENT AMERICAN BANKERS ASSOCIATION.

The question of "Guaranteeing cotton bills of lading" is one which is now going through a process of evolution, so to speak. At this stage of negotiations between domestic and foreign bankers and the shippers, it would probably be ill-advised to write or speak definitely as to any probable solution of the matter. Personally, I am heartily in favor of some agreement that will be entirely satisfactory to all concerned—shippers, bankers, consumers, carriers, and everybody who has any interest in the integrity of a bill of lading. There is no question about the fact that heretofore shipments of cotton have been made in a more or less unbusiness-like way, to say the least of it, and the demand is now made, due to startling disclosures in the recent failures of several large cotton firms, that a satisfactory arrangement be effected, that will amount to, if not a guarantee, at least an assurance that the cotton is on hand, that the receipt calls for.



ROBT. J. LOWRY.

Bills of lading have frequently been given in a careless haphazard sort of way, and as long as there were no terrible mishaps, things went along all right, but the startling disclosures of the recent failures were enough to open the eyes even of the laiety, and to cause a demand on the part of the financiers who really move the crop, that bills of lading must amount to something more in reality than the paper they are written on. In other words, when the carrier issues its bill of lading, the stuff must be there. The different interests of the country, as well as foreign bankers and financiers, have this matter now under serious and thoughtful consideration, and they have made progress, for the demands of the foreign bankers seem to have been met to some extent, but the matter is still in *statu quo*, and any prediction of future policy along this line would be to some extent at least guess-work, I am satisfied, however, that at no distant date arrangements will be made, that will be entirely satisfactory to the shippers, carriers, and bankers. I make this statement in the light of the progress of negotiations to this date, and it is to be sincerely hoped for the mutual protection of all interests that a satisfactory arrangement may soon be arrived at.

I feel more disposed to discuss in a general way conditions in our Southland, with special reference to our leading crop, cotton. Cotton is the money crop of the South, and on account of the good prices ruling it has for the past season or two brought sufficient money into the South to make basic conditions in this section more sound and safe than ever. The textile industry in the South has suffered a slight depression due to the mills curtailing output, and in some instances closing down, on account of the high prices of cotton, but the local mills will necessarily have to meet these prices sooner or later, for the demand of foreign markets is heavy enough to prevent a slump in prices due to a falling off or cessation of local demand. When money keeps pouring into the South for the cotton, in the raising of which it virtually has a monopoly, conditions must not only hold their own, but steadily improve. In Georgia alone during the present cotton season the crop should bring into our State, including the by-products, something like $150,000,000, or about $55.00 per capita. This much virgin wealth produced from the soil in one year is enough to make financial conditions steady, for it enables the farmers to meet their obligations, and all enterprises to keep busy and thrive. Add to this the products of our mills, which we sell at a distance, and that much more money comes into the State.

It is indeed gratifying to the patriotic interested observer to note the improved conditions, under which our farmers and the rural population of our State are now living. The advantages are too numerous to mention, which even the remote rural districts now enjoy—better roads, better schools, better clothing, better food, better houses than they have ever had before. The rural free delivery of mail, and the installation of telephone service throughout the rural districts has brought the families of the farmers in close daily contact with the cities and the commerce of the country; they live better in every way; and they enjoy life, for they are able to pay their debts and have a surplus, with a part of which they indulge their families to a reasonable extent. The South is to be congratulated and it felicitates itself upon the improved and rapidly improving conditions in the rural districts of this great section.

In view of the greatly improved and constantly improving conditions in the South, it is indeed a most inviting section for desirable immigration. There are so many lines of endeavor in this wonderful section of our great country, in which honest effort will meet its just reward, that we should encourage desirable immigration from other States to this section. Immigrants from the North and the great West, where they can only work their farms a few months in the year, can come here, and work every day in the year, if necessary, and make several crops a year. Money can be made on small farms in the South, and, in view of the improved conditions surrounding the rural population, and the advantages and facilities for liv-

ing well, there is no better way to help build up our State and section than to encourage small farmers to come among us from other sections, develop our resources, and become a part and parcel of our great hospitable Southern section. Our people here are a people, who have combined sentiment with business ability and energy, and there is no more pleasing environment than among the good people of Georgia.

When desirable immigrants come here, if they will take up this one line of work of raising cotton, they will make money. There is no question about the market for this crop; the world demands cotton, and the South raises 75 per cent. of the world's supply; hence there must necessarily be a constant market for it. The demand has not only been steady, but has materially increased, and hence the price goes up, and, barring a few fluctuations from abnormal causes, stays up. As the South raises the largest portion of the world's supply of cotton, and the demand increases, cotton necessarily will continue to bring good prices, as the market is governed by the law of supply and demand.

There are two very decided needs for the benefit of the Southern section in the handling of its cotton. Barring foreign demands for better security, we need in this country a standard uniform bill of lading, and the same kind of a warehouse receipt. We need a warehouse receipt uniformly recognized from one end of this country to the other. It should be such that a man could store his cotton in a Southern warehouse, take his receipt, go to New York, Chicago, St. Louis, or even San Francisco, and hypothecate it if he wishes. So far as the London bankers and foreign shipments are concerned that matter is now undergoing serious consideration, and will eventually be satisfactorily adjusted, but here in our own country, if we had a uniform standard warehouse receipt, recognized by bankers throughout the country, it would be most convenient for the patrons of the banks, save much correspondence, and avoid complications and possible fraud. It is gratifying that agitation for uniform negotiable instruments throughout the States is rapidly crystallizing into a policy, which, when perfected, will make the marketing of the cotton crop much easier for all concerned. The warehouse or elevator receipts in the West given for wheat, barley, rye, or corn, are an ideal form and practice for the South to adopt in the handling of the cotton crop.

I wish to emphasize the fact that immigrants, when coming here, need not have the quaking fear that they can not make a living. The opportunities afforded by the State of Georgia for people with or without means are manifold. We have boundless resources yet untouched or insufficiently developed. We have work of some kind for everybody, and, if people without means come to our State, and fail to find employment in the cities or towns, there is ample room on our farms for all industrious men to make a living. We have a temperate climate, and we have a pleasant State to live in the year round. We have no wet and dry seasons, and no direful epidemics. We offer the most inviting field for capital; for our immense resources need exploiting, and be it said to the credit of our people that we are remarkably free from shutdowns, lockouts, strikes, and other labor disturbances. People of other States are rapidly recognizing the fact that the South has a climate absolutely unexcelled, and are migrating here from all sections of America, bringing their families and their money, making their homes and investing their money in this prosperous section.

With further reference to the question of guaranteeing cotton bills of lading on foreign shipments, I wish to say that I would be better satisfied if the necessity for this question did not exist. In other words, the ideal condition would exist, when our cotton would go from the gins to our own mills, and not have to go across the water at all. It seems a great pity that England, Germany and other European countries, which do not grow a boll of cotton, should weave into fabric this staple, and they so far removed from raw material. The time will come, in my opinion when the South will utilize in its own mills its cotton crop, and, when that time comes, the question of guaranteeing cotton bills of lading on foreign shipment will no longer disturb us. Our financial and commercial independence will have been assured, and the South will excel all other sections of our great country in commercial growth and material prosperity.

USE OF SAMPLES AND PATTERNS IN CHINA.

Large quantities of patterns and samples are wasted every year, owing to the fact that most houses in China have very faulty methods of filing or arranging them for reference. Merchants should use brightly-colored pattern cards, with distinctive devices upon them, and necessarily the width, length, quality, and the consecutive number on the price list. Absence of this information on the tickets often causes the native buyer to throw the patterns aside.

The fact appears to be that Chinese buyers are indisposed to trouble themselves very much, and require everything to be placed, as it were, in their hands ready for use. It is, of course, imperative if the best results are to be achieved that the native temperament and habits should be considered, and though repetition of detail is vexatious, it is worth undertaking if improved business is likely to result.

Shanghai advices to Norden Company say: "Our market is steady with a fair demand at unchanged prices. The Chinese are acting very cautiously and instead of bringing goods here and taking the risks of the market, they are satisfied to work for commission by buying on local terms and turning over promptly to up-country merchants. They are very skeptical of the future; consider tael prices on this side too high and in spite of the strong position of cotton they argue that purchases of goods in America can not turn out profitably unless a rise in exchange helps to reduce the laying down cost. They also fear the competition of Japanese and native made goods which, at the present high prices asked for foreign makes, are able to attract an increasing proportion of demand in the north."

It is announced in private circles that a British syndicate is in the process of formation for acquiring large tracts of land in Gezira, Blue Nile Province, for cotton cultivation. Considerable correspondence, it is said, has been exchanged on the subject between a British firm of cotton merchants in Alexandria and a leading firm in the Sudan.

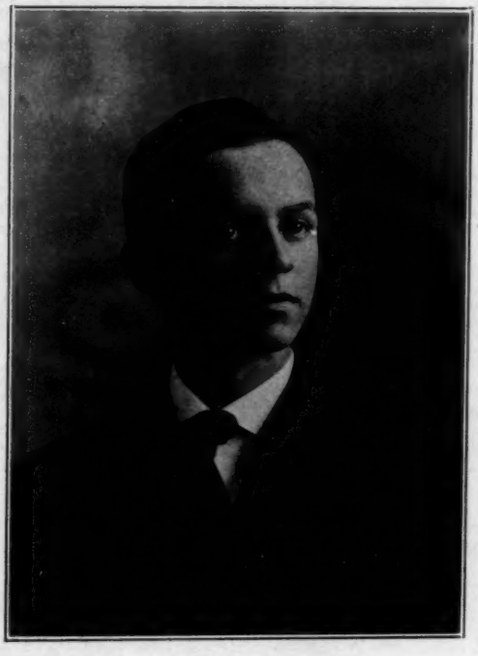
In the Heart of the Cotton Mill District of the South.

(Contributed exclusively to COTTON.)

BY E. B. ADAMS, SECRETARY CHAMBER OF COMMERCE, GREENVILLE, S. C.

The year will mark the advance of the Southern textile manufacturers into competition with the fine cotton goods manufacturers of the East through the erection of a fine goods mill at Greenville, S. C., under the direction of J. J. Westervelt, to make Indian lawns and linens from combed yarns.

The beginning of the new industry in the South will no doubt be viewed with the greatest interest by the entire textile world. The development was looked for a dozen years ago. It was thought even inevitable at that time, and the establishment of the mill at Greenville now is but the inevitable outcome of the trend of the times. The mills should come to the cotton; and the advantages the South has to offer in placing the spindles and looms in the cotton fields must weigh heavily with those interested in the ever-increasing industry of cotton goods manufacture. The delay has been longer than was expected, and yet it may be explained by natural causes. Heretofore the South has not been able to offer the expert labor, and it was also necessary to overcome the opposition of the mill men of the East who had already invested in Eastern mills and would not encourage competition such as the South would be bound to offer.



E. B. ADAMS.

Time has changed the conditions, however, and it is encouraging that following closely on the change of conditions, the more advanced textile industry is coming Southward. The labor is here in the South today, trained and capable; the climate is exactly what is desired; the South is rich enough to nurse her own industries; and the mills of the East are wearing out with time and use. Therefore, the shift in the setting is timely, and bespeaks a greater prosperity in the manufacture of cotton goods for the South.

The erection of the new style of mill to make the lawns and linens means that the South is advancing in the manufacture of cotton goods, and that the section is going to reap greater financial benefits from the new industry. To fully understand just what the industry will mean to the people in monetary terms, it is necessary to take a backward glance over what the South has done in the cotton goods industry, and what the mills we have with us now are doing for the betterment of conditions.

From the year 1880 to 1910 the increase in capital in the cotton mills of the South was from $21,000,000 to $281,375,000; an increase of $260,375,000, and a per cent. increase of 1,239.9. The figures for the same period in the country at large show an increase from $208,000,000 to $705,000,000; a gain of $497,000,000 and a per cent. increase of 238.9. Comparison therefore shows the percentage of gain in capital in the South was 1,239.9 per cent. and in the country at large 238.9 per cent. Between the years 1880 to 1910 the spindles in the South were increased from 667,754 to 10,650,000, a net gain of 9,982,247 spindles showing a percentage increase of 1,494.9. For the same period the spindle increase in the country at large was from 10,653,000 to 27,780,000, a net gain of 17,127,000 spindles or a per cent. increase of 160.8

The figures for the amount of American cotton used from 1880 to 1909 show a gain from 108,694,989 pounds to 1,236,011,000 pounds or an increase of 1,127,316,000 pounds, a percentage gain of 1,037.1. For the same period the country at large increased from 750,000,000 pounds to 2,436,000,000 pounds, a gain of 1,686,000,000 pounds or a percentage increase of 224.8 per cent. In the value of manufactured products the South gained during the period from 1880 to 1910 from $457,454,777 to $2,675,000,000, an increase in dollars of $2,217,545,223 or a percentage gain of 484.8. The country at large for the same period gained from $5,369,000,000 to $20,200,000,000, an increase of $14,831,000,000 or a percentage gain of 276.2. The twelve Southern States are using today 1,236,011,008 pounds of cotton against the consumption in the United States of 2,463,000,000 pounds; and the South boasts of 10,650,001 spindles against the United States 27,700,308 spindles; while the State of South Carolina alone claims a growth in spindles from 1880 to 1910 from 82,334 to 3,782,773.

So much for the growth of the textile work in the South. That the development has meant the awakening of the South industrially can be seen by the increase between the years 1880 and 1910 when the density of population in the South increased from 29.1 per cent. to 34.7 per cent.; capital invested in manufacturing plants from $1,153,002,368 to $2,214,000,000; products of the plants from $1,463,643,177 to $2,777,000,000; and true property values from $13,863,073,149 to $21,500,000,000.00.

What the cotton industry has done for the South in general it can do and has done for the communities where the mills have been grouped, and to investigate into just what development has followed the establishment of the

mills, and the change in conditions of the people in general, I will go closely into the direct benefits a community derives from the cotton goods industry. To one who is not familiar with the cotton mill village it is hard to convey an idea of the great number of people who work in the mills. Suffice it to say that hundreds of men, women and young people are required to work the thousands of spindles and looms of a cotton mill, and when several mills are grouped in a community they bring a city with them. Statistics will bear out the statement that there are over 63,000 people actually employed in the cotton mills of South Carolina which makes 189,000 people dependent on the cotton mills for support—which will total fully one-fifth of the white population of the State. In Greenville county alone her 19 mills will require 10,000 operatives, giving a mill population of approximately 30,000 people.

The question is often asked where the operatives come from, and why they are willing to work in the mills? The average man who has not talked with the operatives has no conception of their life. The greater number of operatives in the mills have come from the farms. They were tenants before they started the mill work. And the peculiar part of it to most people is that, even with the increased price of cotton and the general betterment of the condition of the farmers of the South, the cotton mill "hands" are not returning to the farms. A question to a mill "hand" who has rented, or even owned a farm will remove all doubt however. They will tell you that they are just like other ordinary humans—after the dollar. They know that no matter how hard it rains, how hot the sun shines, what the price of cotton or bacon; no matter what comes to pass in the run of the year that when they work in a mill they are going to get their pay envelope at the end of every two weeks from the paymaster. There is an element of ertainty that appeals to the man or woman who has worried and labored throughout the seasons for a crop, always afraid of rain at this time and sun at the other. They will tell you they enjoy the company of the other operatives, and through the amusements furnished by the mill, and the prospects of a trip to the city whenever they desire, life is made more pleasant for them. Then they will tell you they can make more money in the mill than on the farm; and after all, that is why they continue to work in the mills. Statistics show that only 10 per cent. of those who come from the farms to the mills ever return to the farms. A cotton mill "hand" will explain something after this fashion, "My landlord furnished me the land and stock, and he got one-half of my crop—we sharing the fertilizer bill. Suppose I raise seven bales of cotton and sell it at $60 a bale, I will make $420. That is gross. The cotton seed will pay me for the fertilizer leaving me about even on that score. I planted a little in other products, with about six acres in corn, and after paying my merchant for the few things I had bought of him, and settling up with my landlord I had just about $80 coming to me. Of course my family worked to help me, and we did not make enough to buy a new round of clothes at the end of the year. Now we all work in the mill. I make $1.50 a day, my two daughters make together $1.60 a day, my two sons together $2.00, which totals $4.10 a day or $24.60 a week. This will leave me a balance weekly of about $10.00."

The cotton mill hands stay at their work because it pays them. The average cotton mill employee is well housed, and enjoys many of the comforts of life in the cotton mill village. The mill villages of from 100 to 300 houses are well arranged, the company providing wide streets with shade trees in many instances. The houses are rented to the operatives at about 45 cents a room a month. The average family spends much of its earnings in the house furnishing, and a large number of the houses in a mill village will have a graphophone, an organ, electric lights, many and varied kinds of pictures, carpets, rugs, comfortable chairs, etc. The mills are continually providing better homes for the operatives, and encourage the purchase by operatives of homes immediately adjacent to the mills. In one village in Greenville in particular the people seem to be making the mill village their home—Monaghan Mill—where almost every yard has a neatly arranged flower garden in the front, and a small vegetable garden in the rear, while the family owns a cow which grazes in the common mill pasture. The average mill hand lives well, and is a good citizen of the community in which he resides.

And they are able to pay for many of the luxuries, even though the opinion is generally held that they are not well paid, and that they live from hand to mouth. To get at the facts of their wages it is well to consider a concrete example: Suppose a family of six, not counting the mother as she does not work, in the employment of a typical Greenville mill. The figures will show as follows:

FAMILY	OCCUPATION	DAILY WAGE
Father	Outside	$1.25
Son, 20 years,	Weaving	1.50
Son, 18 years,	Weaving	1.50
Son, 16 years,	Cloth Room	1.00
Daughter, 13 years,	Cloth Room	.50
Son, 25 years,	Weaving,	1.50

$7.15 a day or $42.90 a week.

Consider a family of father and two daughters:

FAMILY	OCCUPATION	DAILY WAGE
Father	Outside	$1.00
Daughter, 23 years,	Speeder	1.08
Daughter, 20 years,	Slubber	1.00

$3.08 a day or $18.48 a week.

Consider another family of eight:

FAMILY	OCCUPATION	DAILY WAGE
Father	Cloth Hauler	$1.00
Son, 28 years,	Weaver	1.15
Son, 24 years,	Weaver	1.15
Daughter, 20 years,	Spooler	.80
Daughter, 18 years,	Spooler	.80
Son, 16 years,	Card Room	.75
Son, 14 years,	Doffer	.50
Daughter, 13 years,	Helper at Warp	.40

$6.55 a day or $39.30 a week.

The general idea of the mill presidents seems to be at this time to keep the help satisfied, and as a result the wage scale is being advanced. Some time ago T. F. Parker, president of Monaghan Mill of Greenville, said in an address, "If he (a president) lightly posts in his office, 'Those who only work for what they are paid, are only paid for what they work'; will not his operatives post in bitterness in their hearts, "Those who only pay for what they get, will only get for what they pay'." The mills

are paying on the average of 75 cents for children up to 16 years of age; $1.00 for women and $1.50 for men, some even earning as high as $2.00 a day. The cotton mill pay roll in South Carolina will approach the $13,000,000 mark yearly, and in Greenville county alone the pay rolls of the mills will total over $2,000,000.

This money which goes to the operatives is spent. The average cost of living of a family of two for two weeks will total about $10.50, including house rent, fuel, groceries, meats, vegetables, lodge dues, etc. The two working in the mill will make on an average $15 weekly, or $30 for the same period as the expense bill covers. Then outside of the pleasures and necessities bought by the operatives they spend much money in investments. Certain it is that they are like the general run of people—farmer, clerk and capitalist—they spend what they earn. The operatives put some of their eearnings into land; and a number of instances might be cited where mill hands own small tracts of land here and there about the city, generally near their mill. In a book relating to the cotton mills of South Carolina August Kohn published a letter from L. P. Hollis, who is in charge of the Y. M. C. A. work of the Monaghan Mill of Greenville, which ran as follows, "I find that 57 operatives of the Monaghan Mills own real estate. It consists of 3 farms; 37 men own 51 lots suitable for building houses on them, and 18 lots with houses already erected on them and occupied. The owners value this property at something like $42,000. All of it has not yet been paid for but the majority has. There are others who own property, but I have no way of finding them out. All of the property, with the exception of three farms and a few lots, are on the outskirts of the Monaghan village."

In the same work, the fact was mentioned that the operatives were placing their earnings in banks and a list of ten names was given of cotton mill hands who had a credit of over $2,000. Certain it is that the local banks of Greenville are anxious to receive the savings accounts of the operatives. At the Brandon Mill of Greenville there is a savings bank, and its statement for 1909 showed the capital stock $5,000; deposits $10,071.70; and savings deposits of $14,274.13. This bank is maintained right in the mill village. The savings accounts of the banks of Greenville city will show a total of $610,522.02, and much of this money is to the credit of the cotton mill operatives. The stores get a direct return from the mills, of course, in the money the operatives spend. With this fact in mind the people of Greenville have taken a most active part in the organizations of the 19 mills in the county with 522,456 spindles, having a combined capital of $7,600,000, and representing an investment of $10,449,120 producing an output valued at $8,736,377. The mill operatives will cause a city to be built wherever they live and work.

Those who have invested in the stock of the mills, and the merchants of the community where the mills are located are as a rule heavy stockholders, draw from the Greenville mills yearly over $500,000 in dividends. This is re-invested for the good of the city. Then the trade of the operatives is good. They buy the best of everything, one shoe merchant telling me that his best trade is with the cotton mill help who buy his best shoes. The Greenville merchants report that the mill people buy the best they have to offer their trade.

An example will show the way the erection of the mills and the bringing to the community of the thousands of new people tends to increase the price of real estate. One tract of land—and this illustration is not an exception—was bought some 25 years ago for around $1,600. The man who purchased it claims to have made approximately $24,000 out of trading with it. Very recently a part of it was sold by the original purchaser for $16,000. The new owners developed a part of their purchase and realized from the sale of lots about $5,000 and then sold the remainder for $20,000. The man who made the first purchase 25 years ago has sold within the last few months one lot, which he retained when he made his sale for $16,000, for which he received $1,860—$200 in excess of what he paid for the entire tract from which he had already made $24,000 and the other owners in turn had made handsome profits. The secret of the increase was that the property lay near the center of the mill development. The property in the center of the city has been increased in proportion, one sale having been made within the last few months for $17,000 which netted the owner who held it only a year over $8,000.

The mills have also been the cause of the prosperity of the farmers. No farmer has trouble in selling in a cotton mill community anything to eat which he raises; in fact the city proper suffers, as it is seldom the truck wagons with chickens and vegetables get into the city through the mill villages. The increase in the city and the county of Greenville from the erection of the mills is an interesting item to contemplate. The county raises 40,000 bales of cotton. Before the mills were erected the farmers were pleased to get eight cents for cotton which would total them for the 40,000 bales about $1,600,000. That was the entire revenue they received from their crop. Today the price of cotton has increased because of the demand; and the same 40,000 bales will bring $2,400,000 or an increase of $800,000. Besides the money received from the sale of the raw cotton the people receive today an additional $8,736,377 for the manufactured goods; $2,000,000 in pay rolls; increase in land values, and the benefits from the bringing of new developments by the operations of the mills. These figures are for Greenville county, S. C. but are typical of any mill community.

And this year is to mark the coming of the fine goods mill. Just what the development is to mean to the South is hard to forecast. It certainly means the widening of the scope of the industry; the betterment of the cotton goods market; the bringing of new capital and new interests to the South; the placing of the South on the same footing with New England; and the enrichment of the country through the very material increase—estimated at 30 per cent.—in the general wage scale. The new industry opens a "graduating school" for the mill help, affording them work which will prove very profitable, and a place to use the skill acquired in the present mills. The erection of the one mill in Greenville will, of course, not change the conditions, but it is expected that others will follow at once, in fact Greenville is considering the erection of others—and the trend of development in the future will be towards the fine goods mills which must of necessity mean a greater prosperity for the South in its textile manufacturing work.

The Relation and Advantages of a Cotton Mill to a City.

(Contributed exclusively to COTTON.)

BY JOHN WOOD, SECRETARY CHAMBER OF COMMERCE, SPARTANBURG, S. C.

A man in North Carolina upon being informed that the bark under the sheds of a local tannery was valued at something like $30,000, said it reminded him of a friend named Bill who wrote for quotations on a saw mill outfit and found it would cost him $500. Bill wrote back: "If I had $500 what in thunder would I want with a saw mill?"

Time was when almost any community in the South would have made pretty much the same remark concerning the establishment of a cotton mill. But times have changed. Many communities now have both the $500 and the saw mill." The "Bills" have managed to build their cotton mills, make the operation of the mills profitable, and then have sold their mill stock to outsiders deriving, if not a premium, certainly enough to give them back their money to be used in new enterprises. In short, the South has demonstrated most forcibly in this, the truism that a fact can be financed more easily than a theory. The theory that cotton mills would succeed in the South would perhaps have never obtained recognition had not the South built the first mills herself. Thereby has she profited and likewise, *per se*, the individual communities wherein the experiments were tried.

JOHN WOOD.

This familiar history is repeated only that deductions presenting one of the chief values of the cotton mill to a town may be given—the effect the development of this industry has had upon our people. It would seem to have aroused them to a sense of what they could do if they made the effort and to have awakened in them more lively appreciation of their own ability and resourcefulness. It would also appear to have brought home to them something that has been of benefit to us all in almost every line of endeavor, namely, that they must start their own enterprises and expect to interest outside capital only after they have proved their theories to have been sound, and have demonstrated their confidence in them by investing their own money in them. A projected hotel in this locality was long delayed until this lesson was learned. After it was erected and was being successfully operated, the bonds underwritten by the people who built it found ready market. Every cent for the construction of that hotel had to be raised at home, but its bonds are widely scattered now. So it was for a period in cotton mill construction. So it is at this time in projects of many other kinds. There is a valuable lesson being taught in the comparative ease with which capital for cotton mill building may be obtained, and the lesson is being found profitable to the men who have money to invest with us as well as to those of us who are endeavoring to secure these investments.

A well posted man in a town around which cluster a number of mills estimates that only about 35 per cent. of the stock in those mills is now held by the original local subscribers. Out of a capitalization of $1,000,000 for example, there has been returned $650,000, if not more, to the men who advanced the money at the outset, the places of these original investors being taken by others not before interested in or concerned with that community. Were this proportion to be applied to Spartanburg county where the capitalization of the mills is approximately $12,000,000, it could easily be seen that but for the mills an immense sum would never have been attracted to this particular portion of the South.

But, while the cotton mill industry has been a sort of pioneer, an educator in the field of industrial development, an advertisement of the determined energy and ability of the South together with the South's confidence in herself, and has performed a great part in the South's wonderful progress of the last 25 years, it has also done for the individual community what no other agency could have done. It has gathered into villages and towns many thousands of people for whom the door of opportunity would, but for them, have probably never opened. This, be it said, is to be no discussion of the social features of the textile worker's life, of evils alleged or true, of the problems that this new order of things has brought about. Such discussion is not needed here. But we do like to know that these people are being made citizens of intelligence and worth, that to them a wider perspective is vouchsafed, while for their children are offered opportunities for education and development undreamed of a generation ago.

Are these people being assimilated? Are they acquiring property, establishing themselves, patronizing the savings banks, fitting themselves for their new and broader citizenship? Is their strength beginning to be felt, their value to the adjoining community making itself manifest? Are they being reckoned with on election days? Do they swell the census rolls, number among the religious population and demand attention in the arrangement of our economic affairs generally? These are easily answered questions, but how many are aware of how immense, how wide the difference is between these people of today and the

same of a decade ago? How many will deny the advancing progress of these people to still higher and better things with its attendant value to adjacent neighborhoods? Whether the pioneer cotton mill village was a welcome ajunct or not, is not the rapidity with which mill villages are being multiplied whenever opportunity presents itself today unanswerable argument that it does possess certain value? One rarely hears of the refusal of a community to annex itself to a mill village or vice versa.

Yet, honesty compels the statement that one seeking an argument need proceed no further than the principal street of a mill center. If one is especially fond of that form of diversion he need only approach a group of citizens and ask their opinion of the value in a financial way of the nearby mills to their community. It will be learned that the mills are the most potent of all deterrant factors, that they permit no cotton to be sold on the streets, that they depress prices for their own gain, that they monopolize the money market, pay the lowest interest rates for their own accommodations and force the banks to make up the difference from others; that they persist in establishing mill stores out of which enormous profits are made that would otherwise accrue to the town; and that they are at times even haughty.

Mark Twain said he once became a candidate for the Legislature and that the first day out his opponent accused him of stealing a mule. The second day he proved it on him. Each and every one of the above allegations is susceptible of proof. Yet, there is frequently a brisk local market for cotton mill stock and rarely a failure to organize a mill when the attempt is made. And, this can not be attributed altogether to philanthropic notions on the part of the local investor. Nor, for that matter, to a mere desire to assume the responsibility of bringing unenlightened people under refining, uplifting influences. The builders may be designated, may they not, industrial missionaries only.

However, granting all this and more, the following results of the building of cotton mills either in or near a town may be shown: Attraction of new capital; the spending of much money locally, thus benefiting each citizen indirectly if not directly; the creation of new taxable property and the payment of taxes for support of local government; the demand for better transportation facilities, the influence for better passenger schedules and a tremendous weight in demand for more equable freight rates; the demand for building materials, house furnishings, etc.; the employment of certain salaried people whose necessities in clothing, food and amusements are purchased outside the village; the creation of a steadily increasing market for comforts of life, newspapers and books, proportionate to the metamorphosis of the village population; a market for farm and garden products, poultry and meats; the regular visits of business men whose presence ultimately means better hotel facilities and the provision of other needs for the traveling public. The list might be continued indefinitely, although no mention has been made of repair shops, of supply houses of manufacturers' agencies, etc.

In all industrial discussions, the matter of dividends has weight. If only 6 per cent. per annum were paid the stockholders of a $1,000,000 mill and only 25 per cent. of the stock were held locally $15,000 would find distribution each year. A capitalization of $12,000,000 would mean local distribution for $180,000. Dividends are usually greater than 6 per cent. and doubtless more than 25 per cent. of the stock in our Southern mills is held by home people. And, yet, in figuring upon the advantages of a cotton mill to a town we should say adhere to the word "to" and if need be let the word "near" immediately precede it.

Is a cotton mill an advantage to a town? Evidently the people of the towns think so, for within a radius of 50 miles of Spartanburg, S. C., wherein are now over one-fifth of all the spindles of the South and where the textile industry now represents an investment of between $50,000,000 and $60,000,000 new mills are being built, or are about to be built, or mills are being added to at a cost that will add several million more dollars to the above enormous sum.

BOLL WEEVIL ENTERS ALABAMA.

The Mexican cotton boll weevil spreads almost entirely by flight. The movement each year begins about August 15th and may continue well into November if atmospheric conditions are favorable. Early in the season while cotton squares are abundant, the weevils seem satisfied to feed and to reproduce in the field which they first enter in the spring, but when the crop begins to mature, so that squares become scarce, or if all the squares in the field become infested by the weevil, they seem then to develop a strong tendency to fly in search of fresh, uninfested cotton. On warm, sultry days particularly, the weevils fly very freely and may cover long distances. Flight may be in any direction but only that toward new territory can be detected. For this reason, the annual spread of the weevil seems to be very much in the nature of an over-flow and this over-flow has averaged about fifty miles per year since the weevil entered Southern Texas. The spread through Southern Mississippi in the fall of 1909 covered a wider area than any previously known, extending over about 125 miles and bringing the weevils to within a few miles of the Eastern Mississippi line in Jackson county.

Those who are familiar with the habits of the weevil have been expecting the insect to invade Alabama during the present season. Newspaper reports of its occurrence in various parts of the State have been investigated and invariably found to depend upon the occurrence of some other insect. The easternmost point at which weevils were found was at Wilmer, Mobile county, on September 3rd, within about four miles of the Mississippi line. No trace of the weevil could be found as far North as Citronelle or even at Semmes, which is seven miles Southeast from Wilmer. This is the first time that the weevil has been found breeding in this State and the occurrence is notable for that reason. The weevils producing the infestation found entered the Wilmer fields about August 20, as is shown by the age of the immature stages taken in squares and bolls. The advance of the weevil may continue until some time in November. It is likely that the line of infestation may then extend into several of the Western tier of Alabama counties.

These weevils will do practically no damage to the crop of the present season but finding squares and bolls in which they may reproduce, they will become established, pass through the winter, and be ready for the crop of 1911.—Alabama Experiment Station.

Annual Review of the Cotton Market and of the Agricultural Progress in the South.

(Contributed exclusively to COTTON.)

BY H. & B. BEER, NEW ORLEANS.

The growing importance of the South as an agricultural section is attracting the attention of the whole country, and in this connection it may be said that the industries are keeping lock-step with the progress made in farming, the Southern mills having consumed more cotton last season than the mills of the North—2,341,000 bales against 1,994,000 bales. Its farms and plantations yield this year products worth between $2,600,000,000 and $2,700,000,000, as aside of cotton, the grain crops of the South are valued at $700,000,000 to $800,000,000, while tobacco and rice will add another $100,000,000, and live stock, poultry, dairy products, fruit, trucking, hay, sugar and miscellaneous products easily aggregate $700,000,000. Truly the South, by reason of its prolificness, is the land of sunshine, milk and honey.

Of the total increase in grain production in the country in 1910 of 393,000,000 bushels over 1909, more than 58 per cent. of the increase was in the South, a most astounding advance as compared with the rest of the country.

The opening of the new year finds the price of cotton at the highest level for this period of the season since 1874 for the second consecutive year. The crop of 1909, which was 10,610,000 bales, sold at an average price of 14 3/8 cents, or for about $911,000,000 including about $132,000,000 for seed. If the crop of 1910, which promises to be about 12,000,000 bales, sells for an average price of 14 3/8 cents, it will have brought $1,000,000,000 or more including the seed for the first time in the history of the trade. This is a showing of affluence that no other section of the country—North, East or West—or of the world can equal in revenue from one crop, and while the corn crop of the whole country in 1910 was 3,121,000,000 bushels, the South contributed 915,000,000 bushels, furnished 86,000,000 bushels of wheat and provided 70,000,000 bushels of oats; a total of 1,071,000,000 bushels of grain, or 22 per cent. of the entire country. In the production of cotton the South has a monopoly, no other part of the world having so great an area of cultivated and undeveloped land suitable for the growing of the staple without encroaching on the soil devoted to the growing of food crops, as is the case in India. Therefore the Southern planters have nothing to fear from foreign competitors as regards the growing of cotton.

NEW ORLEANS COTTON EXCHANGE BUILDING.

Prices for the staple have ruled high, owing to the unfavorable weather conditions of the past year more than to any other cause. The three seasons of the year, spring, summer and autumn, were adverse, to say the least. The planting season of 1910 was well advanced, and the sowing of one of the largest acreages on record, 33,196,000 acres, was nearing completion at the close of last April when a severe cold wave invaded the cotton States, damaging or killing nearly all of the cotton that was above ground and preventing the seed from germinating, causing it to rot. In consequence most of the planting had to be done over again, in some instances two or three times before a stand could be secured. Torrential rains in Alabama and Mississippi gave some more trouble by drowning the low lands in the latter part of May. Before these conditions materialized, the market, despite the world's small visible supply of American cotton, and it is 231,000 bales larger now than it was then, declined from 17.11 for July at the close of December to 13.95 in the early part of April, and at that time new crop deliveries, October and December, were quoted at about 12.25 owing to the large acreage and early favorable prospects for the new crop.

Later in the year Texas began to complain for the want of rain, the summer rainfall having been the lightest in years, total average for the State for June, July and August only amounting to 4.52 inches against 7.94 inches in 1908, in which year the lack of moisture and excessively high temperature caused the making of the previous small crop. This unfavorable development following the set-back of the crop by the end of April cold wave, created a very uneasy feeling, but the crop continued to do fairly well, though prices were still on the up grade.

At the moment predictions are being made that July cotton will sell at 20 cents next summer. This question

lies in the hands of Providence to decide, and not in the power of the manipulator, as the weather, the acreage, preparations and prospects for the new crop will be the governing influences; just as they were last year until the elements became unfavorable and changed the course of the market. Today the world's visible supply of American cotton is 4,109,000 bales compared with 3,877,000 bales last season, when, with unfavorable weather until April the market declined 316 points from January 1st, recovering thereafter by the end of April due to damaging frosts; and continuing to advance later in the year owing to the drouth in Texas. Nevertheless, Texas fared better than generally expected, for while there was an insufficient supply of rain during the summer, the temperature was not excessive, ruling generally about normal.

As regards prospects for foreign crops, Egypt is expected to make about 1,400,000 bales of extra long staple cotton against only 911,000 bales last year, Russia promises to make about 1,000,000 bales compared with only 720,000 bales one year ago, and although private advices from India are to effect that the cotton crop of that country will be about 900,000 bales smaller than last season, the British government estimates the probable yield at 4,668,000 bales against 4,502,000 in 1909, or 166,000 bales larger. Next year there is every reason to look for a big increase in the cotton acreage in America, as the world needs a very large crop and is willing to pay a good price for the cotton. Unless the market declines, the price of the staple will be higher during the planting season of 1911 than it was last year, which is an incentive in itself and of the most encouraging kind. On account of the big decline in the price of grain, particularly in corn, July in Chicago now 48¾, last year 66⅞, and the drop of about 25 per cent. in hog product values compared to one year ago, more cotton is apt to be planted next Spring at the expense of grain.

Textile trade conditions, as a whole, are not satisfactory, for while English spinners are reported well engaged, they have to make up for heavy losses sustained last year, averaging about 10 per cent. a share. Continental spinners have not as yet recovered from last year's unprofitable experience, and the outlook in that, the most important of consuming centers, remains unfavorable. In the United States there is plenty of room for improvement, both North and South. New England mills have little demand for prints, owing to the high prices prevailing for goods even though the output is less than normal, yet about twice too large for the trade. As a result stocks of manufactured goods are said to be accumulating, and further curtailment is threatened after the turn of the new year unless the situation improves. China, except at intervals, has been out of the American goods market for a long while, and the news to the effect that 2,000,000 people are facing starvation owing to crop failures and floods will not help to improve the demand for goods from that country.

The following statistical comparatives may be of interest:

Quantity of cotton ginned to Dec. 13 10,690,000 .....

	1910	1909
Quan. of cotton ginned to Dec. 13,	10,690,000	9, 358,000 bales
Amt. of cotton marketed to Dec. 23,	7,773,000	6,825 000 bales
Worlds visible sup., Am., Dec. 23,	4,109,000	3,877,000 bales
Mid. cotton, New Orleans, Dec. 23,	14 15-16	15 5-16

ANNUAL REVIEW OF THE NEW BEDFORD COTTON MILL INDUSTRY.

BY SANFORD & KELLEY, NEW BEDFORD, MASS.

During the year 1910 the net gain in capital invested in New Bedford cotton industries amounted to $6,990,600. There was also $750,000 of cotton mill bonds subscribed for, making a total of $7,740,600 invested. In 1909 the amount so invested was $9,922,500, making a grand total of $17,663,100 invested in New Bedford mill industries in two years—a record never before equalled in any cotton manufacturing center in the United States. Four new corporations were formed, having a combined capital of $4,550,000 and $750,000 bonds—the Neild Mfg. Co., capital $800,000 and $250,000 bonds; the Quissett Mill, $1,000,000 capital and $500,000 bonds; the Sharp Mfg. Co., $1,200,000 common stock and $300,000 preferred; and the Booth Mfg. Co., $500,000 common stock and $750,000 preferred. The following increased their capital stock: Acushnet Mill, $500,000; Anderson Textile Mfg. Co., $5,600; Butler Mill, $250,000; Bristol, $200,000; Crescent Mfg. Co., $35,000 preferred stock; Kilburn Mills, $750,000; New Bedford Cotton Mills Corp., $100,000; Page Mfg. Co., $250,000; and Taber Mill, $350,000.

The number of spindles was increased by 287,421, bringing the number up to 2,935,264. The new corporations furnished 265,000 spindles. New Bedford has about 11 per cent. of the total spindles in the United States. The number of looms is 52,880, an increase of 2,182; the operatives number 30,995, an increase of 3,278; the number of mills is 67, an increase of 7.

New Bedford cotton manufacturing corporations paid in dividends in 1910 an amount aggregating $3,057,800.50, against $2,993,062.50 in 1909—an increase of $64,738. In 1910 the Acushnet paid its regular dividend of 16 per cent. and a stock dividend of 100 per cent., the latter through marking up the value of real estate, buildings and machinery $500,000, to more fairly represent the value of the plant, bringing the capital stock to $1,000,000 where it was nearly 20 years ago when it was reduced to $500,000; the Anderson Mfg. Co. paid 3 per cent.; Bristol, 6 per cent.; Beacon, 6 per cent. on common and preferred stock; Butler, its regular dividend of 8 per cent. and an extra of 20 per cent., the latter from its surplus undivided earnings of the past six years; City, regular 16 per cent.; Crescent, 1½ per cent. on common; Dartmouth, regular 16 per cent. and 5 per cent. on preferred stock; Gosnold, 6 per cent. on both common and preferred stock; Grinnell, regular 8 per cent.; Hathaway, 10 per cent.; Kilburn, regular of 6 per cent. and an extra of $33.34 from accumulated earnings of several years past; Manomet, regular of 8 per cent.; Nonquitt Spinning, regular dividend of 8 per cent.; Page, 5½ per cent.; Pierce Mfg., 22 per cent.; Potomska Mill, regular 6 per cent.; Soule, regular of 8 per cent.; Taber Mill, 6 per cent.; Wamsutta Mill, regular of 6 per cent.; and Whitman, regular of 10 per cent. None of the new cotton mill corporations incorporated since 1908 have paid dividends.

The average dividend rate paid in 1910 on the capital stock of New Bedford cotton mills, excepting Booth Mfg. Co., Neild Mfg. Co., Quissett Mills and Sharp Mfg. Co., which are new, say on $31,865,100, was about 9 59/100

per cent. Deduct the extra dividends paid by the Acushnet, Butler and Kilburn, which were paid in new stock, the average dividend rate paid by the cotton mills on the capital stock of $31,865,100 in 1910 was 6 46/100 per cent.

Local dividend paying cotton mill corporation dividends have averaged per annum for 10 years past, as follows: Acushnet, 31 per cent.; Bristol, 3.85 per cent.; City, 13.3 per cent.; Dartmouth, common stock, 34.2 per cent.; Grinnell, 9.25 per cent.; Hathaway, 13 per cent.; Pierce Mfg. Co., 15.4 per cent.; Potomska, 6 per cent.; Wamsutta Mills, 6.5 per cent.; Whitman, for 8 years, 12.16 per cent; Gosnold Mills, 6 per cent. on preferred stock for 8 years. Of the newer mills, Butler began paying dividends in 1906, and in five years has averaged 11.6 per cent.; Kilburn, for 4 years, 13.96 per cent.; Manomet paid its first dividend in 1906, and in five years has averaged 7.4 per cent.; Nonquitt, completed in 1907, paid its first dividend in 1908 of 4.5 per cent., 8 per cent. in 1909, and 8 per cent. in 1910, an average of 6.8 per cent.; Page began paying in 1908, paying in that year 1.25 per cent., 5 per cent. in 1909, and 5.5 per cent. in 1910; Soule began paying in 1905, paying in that year 2 per cent.; in 1906, 8 per cent., in 1907, 8 per cent., in 1908, 8 per cent., in 1909, 28 per cent., and 8 per cent. in 1910, averaging for six years 10⅓ per cent.

Taken as a whole, operatives in New Bedford cotton mills were not kept as well employed in 1910 as in 1909, owing largely to the high price of raw cotton which naturally reduced the consumption of the manufactured goods. The rate of wages remained practically unchanged. Because of a number of new mills starting operating during the year, the total amount of wages paid aggregated about $9,500,000 against $8,600,000 in 1909.

The financial review of the manufacturing and general business of New Bedford, Mass., for the year 1910, in many respects is pleasing. It shows that seven new mills have been erected here, requiring the expenditure of a little over six million dollars, which record has only been surpassed by that of 1909. About two-thirds of the amount expended was furnished by investors residing outside of the city, making New Bedford so much the richer. These additional mills will give employment to about 2,850 more operatives.

Throughout the year there has been more or less curtailment of production in our mills, in some instances nearly 20 per cent. of the looms being idle—the cause being the curtailment of consumption because of the high price of raw cotton on account of a short crop, and renewed demand for a revision of the tariff downward on cotton goods, causing the buyers to buy from hand to mouth. With these unsettling conditions prevailing, the manufacturer naturally has recourse to curtailment, and it is wisdom to adopt it.

As we have another short crop this year, we may expect further reduction in output for the next six months at least. Curtailment is the safety valve for the manufacturer, and it is urged by the operatives as preferable to cutting wages. We have confidence in the ability and foresight of our mill managers. The mills generally are strong financially, their capitalization is extremely low, and we know that there are over ninety millions of people in the United States, every one of whom must be supplied with cotton cloth, much of which New Bedford mills will furnish, so we believe our mills will do fairly well in 1911.

The outlook for the general business of New Bedford for 1911 is fair, but because of another short cotton crop and the curtailment of our principal industry, is not likely to exceed that of 1910. Because of general curtailment throughout the country, money is likely to be in more plentiful supply, with rates of interest lower than in 1911. It is hardly likely there will be any new cotton mills built in New Bedford in 1911, the condition of the cotton trade and the high cost of construction making it uninviting. The following new mills erected last year are in operation: Dartmouth, Holmes Mfg. Co., Nashawena, New Bedford Cotton Mills Co., Nonquitt No. 2, and Pierce Bros.' Limited. The Kilburn No. 2, erected this year, has started up a part of its spindles, and will have all running by March, 1911. The mills erected this year will start up next year as follows: Booth Mfg. Co. in July; Neild Mfg. Co. about February first; Quissett Mills in March, and the Sharp Mfg. Co. in April. During 1910 the Taber Mill erected an addition to its weave shed; Beacon Mfg. Co. made alterations and additions to its plant; Gosnold Mfg. Co. erected an addition to its storehouse; Bristol Mill a weave shed; Soule Mill additions to spinning mill and storehouse.

The following table shows the range of prices of local cotton mill stocks for the years 1909 and 1910:

	1910		1909	
Mill	High.	Low.	High.	Low.
Acush Mills	400	*346	360	342½
Beacon Mfg.	No sales.		No sales.	
Beacon Mfg. pf	112½	110	111	105
Booth Mfg. Co	100	100	---	---
do pfd	100	100	---	---
Bristol Mfg	154	120	150	117
Butler Mill	197½	144½	175	146
City Mfg. Co	275	242	253	225
Cresent Mfg. Co. com. (silk)	112	100	115	100
do pfd	100	100	---	---
Dart. Mfg Co	325	297½	300	217½
do pfd	112	109	106	103
Gosnold Mills	No sales.		No sales.	
do pfd	112	100¾	113½	105
Grinnell Mfg. Co	250	230	250	210
Hathaway Mfg. Co	No sales.		No sales.	
Holmes Mfg. Com	109	105¾	102	100
do pfd	110	103½	103	100
Kilburn Mills	150	130	195	160
Manomet Mills	136	120	138	132½
Nash'wena Mill	105	94	107	102½
N. B. Cot. Mill Co. com	No sales.		No sales.	
do pfd	100	90	101	100
Neild Mfg Co	102½	96½	---	-----
Nonquitt Spin. Co	129	118	132	112
Page Mfg. Co	130	125	130	121
Pierce Mfg. Co	481	450	No sales.	
Pierce Bros Limited	No sales.		No sales.	
Potomska Mills	138½	130	137½	130
Quissett Mill	102	95	---	---
Sharp Mfg. Co. com	100	100	---	---
do pfd	100	100	---	---
Soule Mill	171	140	175	130½
Taber Mill	143	126	127	91
Wams'tta Mills	150	131½	142½	127½
Whitman Mills	202½	180	225	150

*Old stock.

The appropriation made by the Egyptian Government for fighting the cotton worm during the past summer was $81,500. The statistical department of the Egyptian Government has requested a notable of Edfou, the Omdeh of Belcas, and a principal agriculturist of Belcas, to furnish detailed reports on the cotton crop and the general condition of agriculture in the country.

REVIEW OF THE SOUTHERN COTTON MILL STOCK MARKET.

BY F. C. ABBOTT & CO., CHARLOTTE, N. C.

The year 1910 can hardly be called a satisfactory one from the standpoint of the cotton manufacturer.

Early in the year an improvement in conditions was looked for, but the continued high price of cotton and the lack of response in the price of cotton goods caused continued depression among the cotton manufacturers. Curtailment of production was the rule throughout the year, and the mills were considered as having done fairly well if they succeeded in operating without less and so keeping their organization together. There seems now, at the end of the year, a growing conviction that the real cause of this depression was the over-production of goods in this country, and that a wider foreign market must be found if this condition is to be overcome and a restoration to normal conditions in cotton manufacturing brought about.

The recently announced plan of J. B. Duke, president of the American Tobacco Co., to establish direct selling agencies in China and develop in a systematic way the trade in that country, has aroused much interest throughout the South, where Mr. Duke has in recent years become largely interested in cotton manufacturing, not only by direct investment in the business, but by his immense development of electric power through the Southern Power Co. This company with a capital of $10,000,000 has developed a number of the finest water powers in the Carolinas. It is now supplying power for 125 cotton mills with transmission lines of over 200 miles. Mr. Duke is therefore doubly interested in the prosperity and full operation of a large number of mills. It is very much hoped that his plans for an enlarged market for Southern cotton goods can be very speedily brought about.

Because of the depression in this industry, the business in mill stocks has been equally dull, and because of the few transactions it is difficult to accurately quote the bid and asked prices of the stocks in the various mills. The following list shows the price changes from December, 1909 to December, 1910 of the most important active Southern cotton mill stocks:

COTTON MILL.	Dec. 1910	Dec. 1909	Net Changes.
Aiken	90	91½	— 1½
American Spinning	165	155	+10
American Spinning, pfd	103	100	+ 3
Anderson	55	57½	— 2½
Arcadia, S. C.	91	91	----
Arlington	140	140	----
Atherton	85	98	—13
Avondale Mills	124	120	+ 4
Belton	136	120	+16
Bloomfield	110	110	----
Brandon	100	97	+ 3
Cabarrus	125	125	----
Chadwick-Hoskins	95	100½	— 5½
Chadwick-Hoskins, pfd	102	102	----
Clinton	120	125	— 5
Clifton, com	93½	105	—11½
Clifton, pfd	103	103	----
Cliffside	194	194	----
Chiquola	191	165	+26
Courtney	95	95	----
Converse	----	108½	----
Columbus Mfg. Co	100	95	+ 5
Cora	135	130	+ 5
Darlington	80	80	----
Dallas, Ala	105	100	+ 5
Eagle and Phenix	125	125	----
Easley	170	175	— 5
Enoree	50	68	—18
Erwin, pfd	100	100	----
Florence	125	132	— 7
Gaffney	70	80	—10
Gaston	90	100	—10
Gluck	102	97	+ 5
Gainesville	64	60	+ 4
Gibson	75	80	— 5
Glenwood	145	143	+ 2
Graniteville, S. C.	152	160	— 8
Gray	120	120	----
Grendel	107	112	— 5
Greenwood	55	72	—17
Highland Park	185	185	----
Highland Park, pfd	102	102	----
Hartsville, pfd	103	100	+ 3
Henrietta	170	175	— 5
King, John P.	79	95	—16
Kesler	125	125	----
Laurens	135	135	----
Lancaster, com	135	130	+ 5
Langley	110	96	+14
Linden	----	94	----
Limestone	170	175	— 5
Loray, pfd	95	95	----
Lowell	195	200	— 5
Lumberton	250	250	----
Manchester Mills	109	110	— 1
Mills Mfg. Co.	100	100	----
Modena	105	108½	— 3½
Molohon	110	110	----
*Monaghan	106	134	—28
Monarch	100	106	— 6
Marlboro	76	88½	—12½
Newberry	140	120	+20
Norris	130	125	+ 5
Olympia, pfd	81	85	— 4
Orr	106	102	+ 4
Ozark	110	127½	—17½
Pacolet, pfd	100	100	----
Pacolet, com	90	101	—11
Patterson	125	110	+15
Piedmont	171	176	— 5
Pelzer	160	152	+ 8
Poe	170	167	+ 3
Pell City	80	86	— 6
Pell City, pfd	100	100	----
Saxon	135	126	— 9
Sibley, Ga	72	65	+ 7
Social Circle	----	99	----
Statesville Cotton Mills	100	110	—10
Tucapau	250	250	----
Toxaway	----	91	----
Union Buffalo, 1st pfd	62	73	—11
Union Buffalo, 2nd pfd	14	18½	— 4½
*Victor	116	135	—19
Walhalla, S. C.	----	62	----
Warren	95	93½	+ 1½
Warren, pfd	107	108	— 1
Washington	25	30	— 5
Ware Shoals	75	90	—15
Washington, pfd	105	105	----
Watts	100	88	+12
Wiscasset	120	125	— 5
Whitney	114	121	— 7
Woodside	108	96	+12
Woodside, pfd	95	95	----
Williamston	122	114	+ 8
Woodruff	117½	145	—27½

*Mill enlarged during the year and new stock issued.

Cotton forms one-fourth the value of the exports of the United States, and is therefore the greatest factor in maintaining the country's trade balance with the world. The American exports of raw cotton for the twelve months ended August 31, 1910, which covers the "cotton year," were 6,330,276 bales, valued at $460,093,295. This was 2,236,066 bales less than in the previous cotton year, but the value was $40,748,237 greater than the shipments for the twelve months ended August 31, 1909.

THE YEAR'S EXPERIENCE IN THE COTTON YARN MARKET.

(Contributed exclusively to COTTON.)

BY T. H. S. CONE, NEW YORK CITY.

We began our year with a fair amount of confidence based upon the general understanding that the cotton crop of 1909 was short. Purchasing had been on a careful scale, and stocks for the most part were worked down to safe proportions. The large distributors of merchandise had slowly gained sufficient confidence to make purchases of a fairly liberal character. A great deal was being published broadcast on the subject of higher cost of living, and users of cotton goods were gradually being prepared for material advances on staple goods.

It is unquestionably true that orders were being booked by spinners about a year ago on a basis of 16 cent cotton that showed more than cost and in many instances a satisfactory profit to the spinner. It seemed to be generally agreed that the year 1910 would be marked with prosperity in the cotton goods line, and that the amount of goods wanted would be sufficient to maintain a high basis of price on the short cotton crop. Thus, at the opening of the year, many mills that had been fighting losses and other difficulties incident to trade conditions during the late months of 1909, expected to have a chance once more to do something for their stockholders, and the whole dry-goods trade assumed an air of refreshing confidence.

The cotton manipulators, those enemies of sound commercial conditions, who were on the right side of the market, could not stay their greed and began taking profits by unloading their long contracts on the market. True to the well known habits of speculators, this started a general scramble well remembered, resulting in a decline of nearly three cents a pound in the price of cotton within a few days. In that most unfortuante period, the die of 1910 was cast. Since then it has been a series of losses, disappointments, curtailment, commercial failures, agitation, misrepresentation, and a steady dwindling of capital of spinner, agent and manufacturer.

It does not appear that losses have extended beyond those limits either way. In the dry goods trade, there seems to have been plenty of merchandise available at "last year's" prices or lower, and on the producing end of the raw material, the crop has certainly increased the wealth of the farmers and active holders to the extent of millions of dollars. It would therefore appear that the yarn spinners, their agents and many goods manufacturers have been between the upper and nether mill stones. There has certainly been some fine grinding, and the results are apparent to any observer. In the yarn business particularly we find more changes reported than in any one year in our experience. Several large houses are practically giving up that branch altogether on account of its failure to show profits or good prospects. Yarn men are seeking positions with other houses because they have not been able to earn anything like the amount of their salaries where they were.

Many spinners find it necessary to curtail once more. Some of them have decided to make an exhibition of their financial condition to their creditors, with probably more to follow. Several goods manufacturers have gone to the wall entirely; some of these failures being of a most disastrous character so far as the creditors and stockholders are concerned; all resulting from efforts to do business between theoretical limits set in defiance of the fact that the price of an article is determined by what it will bring. The majority of spinners made up their minds as early as last Spring that after filling their orders which showed a profit they would take enough additional business to bring them into midsummer at cost or less if necessary, then shut down until improvement was manifest. Raw material was then in the hands of speculators who had enlisted the assistance of some goods manufacturers effecting a combination for the preservation of prices then ruling. There were many spinners who were compelled to go into the market and buy cotton out of stocks so held. The high prices paid in midsummer for cotton on the exchange were paid, for the most part, by speculators probably to complete their engagements for delivery.

It appears that the semi-annual meetings held about mid-summer were sessions of much unpleasantness and discomfort for the mill management as well as the directors themselves. In most cases the financial statement was coldly drawn, those interested having decided to take their loss as bad as it might be; undoubtedly in many instances, part of the abnormal loss shown at that period was not all fairly chargeable to the first six months of the year, but was a legacy from former troubles carried over by various convenient methods known to the science of book-keeping. It was not until October that the mills generally began to undertake resumption of operations. New cotton came on to the market at high prices, and the mills without actual orders hesitated to buy. The manufacturing trade had little confidence, and thus the first orders placed with the spinners were for the most part from dealers. There was good reason for the low bidding on the part of buyers. We had a declining goods-market; stocks of merchandise were brought out from day to day at ever weakening prices; therefore such spinners as were depending upon the market for business, were compelled to take it at prices having no relation to the cost of raw material.

The cotton movement was well under way when the spinners began to buy freely, which resulted in advancing the price of cotton steadily. The large merchandise distributors and manufacturers saw this tendency and decided it was time to cover their requirements. Therefore within a week or two very substantial orders were negotiated by weavers and knitters. Only a small percentage of these were accepted by the mills at the prices sold, because cotton had already advanced a cent or more a pound, and the buyers of cotton yarn could only get sufficient courage to order at old quotations. The majority of spinners then persistently refused all propositions based on the actual selling market, so that the bulk of these orders were taken care of by commission houses and dealers who had, as stated, made large purchases on their own account. Such merchandise was by that time available to supply the daily market; at the same time dealers were making new purchases from the mills on a higher level, thus defeating the operations of the mill broker and the direct seller very largely in getting his customers' orders placed with the mills at current prices. In many instances these conditions developed strained relations between mills and their regular agents, and the first of this year marks some radical changes of that character.

The spurt of business referred to resulted in the spinners shipping in more yarn than the market would take up from week to week, and at the present time there is quite an accumulation of various counts either at the mill or in the hands of agents and dealers.

It should have perhaps been stated at the outset that these experiences were gained mostly with Southern mills on carded yarn. The situation with the spinners of combed yarn and manufacturers of finer goods has been better in a measure, and there has been some money made on that end in spite of all draw-backs; at the same time the outline exhibited would indicate to anyone not already posted, that the cotton yarn and cotton goods business is thoroughly demoralized without much hope of substantial improvement until some fundamental conditions can be changed. Some people think they have the whole case summed up in "over-production," but there is evidently an unsound foundation, and our efforts at doing business are directed along irrational lines. Were conditions otherwise, analysis and comparison of facts and figures would be of substantial value as a means of eliminating friction and reducing lost motion, thus enhancing profits.

In our judgment the main cause of demoralization is the speculation in raw material and an attempt to regulate prices of finished goods from that end. Healthy advances originate with the consumer through scarcity of the merchandise, developing through retail dealer, wholesaler, mill agent and spinner. That gives a chance for profit all along the line, and then the legitimate merchant holding stocks of raw cotton or goods that he has actually purchased in advance, has a chance of a profit if his judgment has been sound or at the worst a natural loss, which taken on the general average would put him out of business.

As it is now, we are all victims of inordinate greed and unblushing clamor for the control of price for squeezing legitimate dealers and manufacturers by those who have little original investment of honest capital of their own, and whose only purpose is to make profits by manipulation without regard to the course of the market up or down so long as their purpose is served. Of course we are met with the common question: "What are you going to do about it?" From others the sweeping statement "you can't stop it; men always have and always will gamble." But the fact remains that we can and must stamp out this pestilence and rebuff these attacks on the stability of one of the leading industries of our country. There certainly can be no objection to people buying cotton as merchants to the extent of their means when they think it is cheap and that they would profit by such a purchase; but they should be compelled to take this in and pay for it just the same as any other merchandise.

The irregular side of the business, that is the gambling characteristics, are easily discerned. Everybody knows where the legitimate ends and the illegitimate begins, and in our humble judgment it would not be much trouble to create successful legislation for the correction and control of these evils. It also appears that the financial interests the banks, the custodians of public money,—favor many of these speculative enterprises in the matter of credit, while they require more than reasonable security from a manufacturer who has a valuable plant, splendid ability in his line and who is a genuine benefit to the community at large as a producer, while these manipulators and gamblers referred to in the foregoing are parasites, many indolent, unworthy and dangerous to a high degree as experience has shown in the past and to-day's condition amply verifies.

Prophecies for 1911 are of little use. All we can see to date is that large distributors of goods refuse to operate beyond nearby needs. They cannot be expected to have any confidence in promises of those in control of raw cotton, as their experience in such assurance has been expensive, and to a man they voice the opinion that they would rather lose $5,000 by being short of goods in case of quick demand, than $25,000 or more by having too many on hand in the event of a decline. May the day of sound legislation for our relief be hastened.

ANNUAL REVIEW OF THE FALL RIVER MILL STOCK MARKET.

BY G. M. HAFFARDS & CO., FALL RIVER, MASS.

Cotton manufacturing for the year 1910 has been, upon the whole, decidedly unsatisfactory. Opening with a fairly profitable business for the first few weeks, the demand for cloth slowly but steadily lessened, the depression being intensified by the great increase in spindles which came into operation in all parts of the country. While this increase of spindles has been largely in the direction of fine goods, nevertheless, the increase in the production of the coarser goods has been greater than the ability of the consumer to care for. Local conditions are probably a fair index of the general situation.

The following table shows the data for Fall River stocks:

CORPORATIONS.	Par Value	Capital	Dividends. 1910	Dividends. 1909	No. of Spindles.	
1 American Linen Co	100	$ 800,000	6	6	94,528	1
2 Ancona Co	100	300,000A	6B	6	40,080	2
3 Arkwright Mills	100	450,000	2½	6	68,432	3
4 Barnard Mfg. Co	100	495,000C	6	6	80,304	4
5 Bourne Mills	100	1,000,000	6	6	91,258	5
6 Border City Mfg. Co	100	1,000,000	6	6	121,228	6
7 Barnaby Mfg. Co	100	350,000	4	2	19,660	7
8 Chace Mills	100	1,200,000	8	8	116,688	8
9 Cornell Mills	100	400,000	18	18	45,040	9
10 Conanicut Mills	100	300,000D	6K	6K	29,412	10
11 Davis Mills	100	1,250,000	6	6	127,504	11
12 Davol Mills	100	500,000	6	6	44,672	12
13 Flint Mills	100	1,160,000	6	6	107,000	13
14 Granite Mills	100	1,000,000	8	8	122,048	14
15 Hargraves Mills	100	800,000	10	7	111,690	15
16 King Philip Mills	100	1,500,000	6	6	135,232	16
17 Laurel Lake Mills	100	600,000	8	8	59,808	17
18 Lincoln Mfg. Co	100	700,000N	0	0	62,800	18
19 Luther Mfg. Co	100	350,000	7	6	51,616	19
20 Merchants Mfg. Co	100	1,200,000	6	6	134,336	20
21 Mechanics Mills	100	750,000	6	6	60,512	21
22 Narragansett Mills	100	400,000	8	8	43,744	22
23 Osborn Mills	100	750,000	6	6	70,332	23
24 Parker Mills	100	800,000	10	7	111,684	24
25 Pocasset Mfg. Co	100	1,200,000	6	6	120,016	25
26 Richard Borden Mfg Company	100	1,000,000	10	8	101,024	26
27 Sagamore Mfg. Co	100	1,200,000	8	8	141,728	27
28 Seaconnet Mills	100	600,000	6½	6½	68,384	28
29 Shove Mills	100	550,000	6	6	77,728	29
30 Stafford Mills	100	1,000,000	6	6	100,576	30
31 Stevens Mfg. Co	100	700,000	6	6	**	31
32 Tecumseh Mills	100	750,000	6	6	78,960	32
33 Troy C. & W. Mfy.	500	300,000	12	13M	50,304	33
34 Union Cotton Mfg. Company	100	1,200,000	6	29½	110,320	34
35 Wampanoag Mills	100	750,000	6	5	84,760	35
36 Weetamoe Mills	100	500,000	6	6	45,504	36
		$27,805,000			2,028,912	

A—$100,000 Pfd. $200,000 Common.
B—Paid on Pfd. stock only.
C—Capital increased Oct.,27th to $500,000.
D—Authorized Capital.
G—Paid on Capital of $580,000.
K—Paid on Capital of $251,700.
**—Equivalent to 63,000 P. C. Spindles.
M—In addition to which a 100% bond dividend was paid.
N—Capital not included in figuring average dividend.

The past year has shown but few extra dividends as compared with 1909. Such increases as occurred were comparatively small; as in the case of the Hargraves Mills and Parker Mills, each of which paid 1 per cent. extra in each quarter, the Richard Borden Mfg. Co. one of 2 per cent., and the Luther Mfg. Co. one of 1 per cent., both in the first quarter. No distribution in stock dividends was made; there was also but one decrease from 1909. The total disbursements for the year show a decrease of $144,300, which causes a decrease in percentage from an average of 7.47 per cent. in 1909 to 6.80 per cent. in 1910; otherwise the changes are without note.

No stock increases were made and the capital remains as of the previous year, with the exception of the Barnard Mfg. Co., which increased its capital from $495,000 to $500,000. There were two new incorporations: that of the Charlton Mill, for the manufacture of fine goods, and of the Willey Co., recently organized. The mills, however, have been kept in a high state of efficiency and show a gross total increase of 86,000 spindles. The completion of the new Flint Mills of 62,000 spindles accounts for a large proportion of this increase; the balance being scattered over several corporations of a small increase each.

As is natural, the stock fluctuations reflected a less prosperous business and present prices, on an average, showed a shrinkage of from $10 to $15 a share for the year. While stocks are still selling on a low basis, as judged by their replacement value, there will probably be a quiet market pending a more satisfactory condition of the manufacturing business. Indications point to the conclusion that we have reached the point where supply is beyond the demand, and readjustment must take place, either through a country wide curtailment, or through the application of the law of the survival of the fittest.

Mill Conditions and Market Reviews.

SOUTHERN MILL SITUATION.

(Special Correspondence.)

Two years ago Southern mills sold $16,000,000 worth of goods yearly to China. Today about $2,500,000 worth of business is done with the Celestial Empire. What that has meant to the many mills which manufacture for export can easily be imagined. Export manufacturers for two years have waited patiently, hoping that the cessation of trade relations would only be temporary, but many of them have had to change their machinery and turn out a product which would sell in the home markets. The loss has been seriously felt and has resulted in heavier production for home trade, thus indirectly forcing drastic curtailment.

B. N. Duke of the American Tobacco Co. has given an inkling of a scheme to revive the export business with China which has set Southern mill men talking. As yet a full statement of his plans has not been made. So far as is known, from his published statements, his plans are to form a large selling company, of which mills making for export will be a component part, taking about 50 per cent. of the stock; and if profits are made, sharing the dividends. It is proposed to allow 5 per cent. for depreciation and 10 per cent. for dividends, and through his selling company to handle the output of as many mills as will join in the plan. He proposes to establish throughout China at least 50 cloth depots, where all grades and standards of goods desired by the Chinese will be handled. Special attention will be given to the demands of the trade, a feature which has not been properly attended to heretofore, and which largely explains the supremacy in trade gained by England and Japan. Sizes, specifications, widths, weight, etc., desired by the Chinese trade will be carefully investigated and the Southern mills represented in the syndicate will be instructed to make such products as are demanded.

Numerous manufacturers have expressed their willingness to join in the plan and a desire for further information. S. B. Tanner, ex-president of the American Cotton Manufacturers Association, who is familiar with export trade conditions, says he believes the plan will prove to be a success. Several manufacturers have stated freely that if, in the face of present conditions, a plan may be adduced which will guarantee a steady market for goods with a 10 per cent. divident attachment, they will not wait for a second invitation to join the promoters.

If the developments of the past month indicate the future trend in the South, it would appear that this section during the next few years will witness the passing of the bulk of the cotton manufacturing business into the hands of the big mill corporations. Up to a few years ago the majority of Southern mills were small and a 10,000 spindle mill was considered a comparatively big mill. Today there are mills having 100,000 spindles and upwards. Another change, and for the better, is towards diversification of manufacture. There was a time when the majority of Southern mills manufactured only coarse goods, the result being that when a temporary depression was experienced in the coarse goods trade, the entire Southern industry suffered. With the advent of the million dollar mill has come the change, in many instances, from coarse to fine goods manufacture. To demonstrate the tendency in this direction, during this past month two large mills have been announced in Greenville, S. C., alone to manufacture fine goods. Another important announcement of the month was that Lewis W. Parker, of South Carolina, will merge the nine big mills in which he is interested into one gigantic corporation, having $5,000,000 capital stock. This merger, besides being for the purpose of economy in manufacture, is aimed to further promote the idea of Mr. Parker concerning the importance of more general fine goods manufacturing.

Erwin Mill No. 4, of Durham, N. C., is a big concern which has commenced operations during the past month. This mill was finished six months ago, but did not commence work on account of the unfavorable condition of the markets. When running to full capacity it will employ 1,000 operatives. It is equipped with 50,000 spindles and makes fine goods. Another large mill being projected for fine goods manufacture is that in which O. A. Robbins, of Charlotte, is the moving spirit. This mill will have $350,000 capital, if not more, and it will be located at Lexington, North Carolina.

It will be recalled that some months ago Marshall Field and Co. purchased the controlling interest in a string of

seven large mills at Spray, N. C., from a company headed by B. F. Mebane. One of the largest developments announced from North Carolina during last month was the visit, and the possibilities it signified of thirty special sales agents of this big Chicago concern to the Spray Mills. The party spent two days looking over the property. It is said that the company has under contemplation plans for the improvement of the property which will be made public later. The 30 representatives were the State sales agents from 15 or more States, extending from Oregon to Alabama. They were brought down to see exactly under what conditions the goods which they sell direct are handled. The mills at Spray are among the largest in the State. It is reported that changes in manufacture will gradually be made as are found necessary to secure just the kind of goods demanded by the trade of Marshall Field & Co. The company is interested in a 12-mile line of railway which will extend from Spray into Virginia, and which will give a direct line to the coal fields, thus assuring cheaper coal, and better facilities for handling their output.

Judge Boyd, in a Greensboro (N. C.) court, placed the Naomi Mfg. Co. and the Randleman Mfg. Co., of Randleman, N. C., in the hands of receivers at the instance of a petition from the Greensboro Loan and Trust Co., the Wachovia Loan and Trust Co., of Winston-Salem, N. C., and other creditors to the extent of $150,000. Receiver Fries, of Winston-Salem, is quoted as saying that with favorable market conditions he thinks the bulk of indebtedness can be paid.

Arguments by attorneys for the mills and for the railroads were heard in Columbia a few days ago before the State Railroad Commission on the petition of 124 mills of South Carolina for cheaper freight rates on cotton piece goods from interior points, such as Greenville, Columbia and Spartanburg, to the port of Charleston. The railroads insisted that the shipments were inter-state and that the matter should be heard by the Interstate Commerce Commission. The Commission held, however, that the cases came under its jurisdiction, and a decision will be announced later. A great deal of interest is being taken in this hearing. Mill interests argue that Charleston has been "bottled up" by the railroads. They also say that their business is seriously damaged by what they consider unfair rates. The railroads claim that with expenses made necessary by improved service it is impossible to accede to the demands of the manufacturers.

One Greenville, S. C., mill has begun to make silk neckties. Aside from some of this kind of work in Atlanta, this is almost a new venture in the South.

Child labor laws are to be proposed in several Southern States. An effort will be made in North Carolina to raise the age limit to 14 years, and otherwise change the existing law into a more drastic measure.

In South Carolina it has been decided to abandon the resolution adopted by the child labor commission, viz., to ask the legislature to raise the age limit to 14 years. It has been decided to work up to that standard. The present law is a success and is being closely observed.

Interesting data on the textile industry of North Carolina has been given out by the State Commissioner of Labor and Printing. The full report will be published later. There are 325 cotton, silk and woolen mills in the State and 300 of them report an aggregate capitilization of $53,097,454. These operate 3,348,022 spindles; 56,516 looms; 550 braiders; 7,762 cards; and utilize 135,356 horse power. The number of operatives is 52,440 and 138,810 persons are dependent upon the mills for support. About 99 per cent of the mills report that the child labor law is being complied with. The majority report improvement in both proficiency of operatives and financial condition during the year. Wages paid range from $2.54 high average to 56 cents low average. Average daily work is ten hours and 45 minutes. About 80 of the mills are equipped with electric power, and 57 of the 77 knitting mills reported have an aggregate capital of $3,619,100. Spindles operated aggregate 109,680; knitting machines 8,216; and sewing machines 699.

NEW ENGLAND MILL SITUATION.

(Special Correspondence.)

As the year closes cotton manufacturers in New England feel depressed concerning the long future of business. They have held a meeting at which a proposition to curtail production has been discussed, and if there is not a sharp improvement in business soon after the new year opens the Arkwright club of Boston will meet to discuss a resolution presented at its last meeting looking toward a curtailment similar to the one carried out in 1910. Some mills have orders that will keep them employed for some months to come but mills making brown goods, print cloths, and miscellaneous products will begin to run out of contracts in January. The chief difficulty complained of is the one of distributing the product based on high cost cotton, in any profitable way. Many of the mills take the ground that if they had a surplus of cheap cotton on hand they might plan to merchandise the output successfully, but all the mills entered the cotton year on a common level of high priced raw material to buy, or in the warehouses to carry them only through a part of the cotton year. Very few mills have purchased cotton enough to carry them through the summer. A few have, but they are exceptional, and in these cases the purchases have been prompted by the need of securing particular staples while they were to be had in the market.

The purchasing of cotton has not been restricted in the majority of cases by the price, but by the inability to secure a value for the finished goods that will recompense them for manufacturing. Two of the richest corporations, using more than 40,000 bales a year, have bought supplies that will carry them through May, and it is known that if the finished product does not move better after the turn of the year these concerns will begin curtailment promptly regardless of any action that may be taken at a general meeting. The mills that are well provided with business are running on ginghams. During the past month one of these mills took an order for 1,000 cases to supplement deliveries that will not be completed before April. All of the large ginghams mills in New England have business enough ahead to keep them employed through April and some are already taking fall orders. The Amoskeag Co. reduced the price on its 32-inch blue chambray during the month to 6 3-4 cents from 7 cents, and after adding greatly to the orders from the cutting trade, it again restored the 7 cent price. Its large new mill is running on these cloths, the construction being substantially the same as the staple gingham. The market call for dress ginghams to retail at 10 cents is active in so far as Eastern mills are concerned

and certain of the dress ginghams to retail at 12 1-2 cents are also fully under order.

The large blanket mills and heavy brown napped cotton goods mills are not carrying stocks. In fact they go out of the fall season remarkably clean and they are being pressed to take business for next fall based on current values, which are about 10 per cent higher than the low opening prices for fall 1910. It will be remembered that these mills took their initial business based on 12 1-2 cent cotton and they were able to show a profit because of the volume of old cotton carried over. This year a different proposition confronts them, and it will be determined in the next two or three weeks whether they will be able to merchandise a full output at a profitable basis. At present the chances are against them for while jobbing stocks are not large, the trend of buying is not to anticipate purchases of goods on a basis of 15 cent cotton beyond May or June at the latest. In the event of initial orders being light it is quite probable that curtailment will be undertaken promptly, as manufacturers are not disposed now to countenance building up stocks of high priced goods from high priced cotton. In all mills where large quantities of cotton are used New England manufacturers say they do not fear the high price so much as they do the danger of wide fluctuations in the price. It was the break in cotton in the early part of 1910 that began the disorganization of cotton goods values and held back consumers from a recognition of the merit of high priced cotton due to a cause as legitimate as scarcity.

At the end of the year Fall River showed stocks of print cloths in hand of about 1,150,000 pieces or about 400,000 pieces in excess of the volume carried at the end of last year. The mills there are engaged on contract for about 90,000 pieces weekly during January, but from that time forward contracts are very light. During the month, M. C. D. Borden entered the open market as a buyer of 27-inch 56x52 print cloths for December delivery. In the last week of December he extended the date of delivery to through January, and from last accounts he had bought about 60,000 pieces for January delivery. Although the price on this specific construction holds firm at 3 1-16 cents which represents Mr. Borden's bid, other constructions of print cloths have not been influenced in a similar degree. Regular print cloths have been at a standstill for months and are not now in demand save for a few lining converters. They are nominally quoted at 3 3-4 cents. Wide goods of print cloth yarn construction showed a slightly firmer tone toward the end of the month, but the buying was larger in New York than in New England and was not sufficient to care for the weekly output in any market. On 39 inch, 68x72, bids of 5 5-8 cents were declined and 5 3-4 cents was asked. The price on 39 inch, 72x76, advanced from 6 1-4 cents to 6 3-8 cents. Orders for 38 1-2 inch, 64x60, were declined below 5 1-16 cents.

New Bedford mills and other fine goods mills in New England are considerably disturbed by the lack of December business. On plain fine cloths, such as 40-inch lawns, prices in the spot market sagged to the lowest point of the year. The narrow fine plain cloths were aided to some extent by the demand from printers who are facing a better season than any in the past nine years for fine printed goods for dress purposes. There has been some small demand for fine fancies but the volume of the white goods business has declined greatly as compared with recent years and mills are not inclined to accept further business in fancies at current low rates. The trade in silk and cottons has been good, and it is estimated that 6,000 New England looms are at work on these fabrics, most of them being in New Bedford. Yet even with the miscellaneous fancy goods business on specialties that can be picked up, the mills are not active and sections of looms are idle in many weave sheds. Some manufacturers contend that the fine goods trade is suffering from overproduction due to the rapid building of new mills in the past few years, while others say the consumption has been sub-normal and will revive promptly after the showings of spring goods are made in volume at the retail counters. It is significant that it was announced during the month that a new fine goods mill of 50,000 spindles would shortly be erected in Fall River by promoters behind Eben Wildey, formerly superintendent of the Barnaby mills, Fall River, and also formerly employed in a Southern factory. There are still many looms in New Bedford equipped for fine goods that have never been started and some mills that are underway are not being rushed to completion. It is also a fact that some of the fine goods manufacturers of long experience are the ones who are most careful in accepting orders under present market conditions.

New England print works are quite busy. The Pacific has not yet completed its extensive additions but the demand for its lines of draperies, crepes, organdies, lawns, and percales, is keeping its available machinery active. The Algonquin and American at Fall River are running full time on staple prints. The Arnold trademarks have been acquired by Burton Bros. & Co., New York converters, and the Arnold works are running in full, printing the goods for this house as well as printing goods for other New York converters who are offering prints on fine combed yarn cloths. The Windsor works are busy on some new percales and fancy prints and their napped lines have been particularly successful. The bleacheries were quite active in the fall and early winter, but they are running out of business and will need it promptly after the turn of the year. Prices on bleached cottons hold very steady and it is expected that higher prices will have to be obtained after the first of the year if some of the leading tickets are to be had. The manufacturers of these cloths say that they cannot go on making bleached cottons on the basis of 9 cents for Fruit 4-4s, and Lonsdale 4-4s, and if there is not demand enough to take care of a normal output at better figures they will curtail. Wide sheetings have held steady and are under order for ten weeks so far as leading brands go. Tickings are well sold ahead and some lines of denims are fairly well taken care of. But working suit goods, stripes, light weight duck and fancy duck, have not sold freely for future delivery and the current demand is light. A few lines of branded domestics are in good shape as to stocks but the mills could readily handle a great deal more business than they are now being favored with. Bags have dragged for some time. Bed quilts are well sold as far as two of the largest mills are concerned but the smaller mills need orders for spring.

Mill machinery is not in good demand. The American Machine Co., and the Whitin Machine Works are reported as fairly well supplied with business, but the others whose equipment has been enlarged in the past few years are now running light, some of them not doing any better than 40 hours a week, with light pay rolls.

The confidence in mill investments continues to hold remarkably well. This is due in large part to the fact that dividends have been kept up in a great many cases by drawing upon surplus funds and as long as this policy can be maintained, few stocks are likely to come on the general market.

MONTHLY REVIEW OF THE COTTON MARKET.

BY H. & B. BEER.

The principal feature of the past month was the issuance of the government's annual crop estimate of 11,426,000 bales exclusive of linters, etc., indicating a commercial crop of about 11,750,000 to 12,000,000 bales. In the meantime the market has worked higher, at the present moment being within a few points of the highest level attained thus far this season. The cause for the further rise is the general belief that there will not be enough cotton to go around this season, although actual consumption last season was only 11,774,000 bales.

There was ginned of this crop to December 1st, 10,698,000 bales against 9,358,000 to corresponding date last year and 11,904,000 to the corresponding date in 1908. The report by States is as follows:

	1910	1909	1908
United States	10,698,482	9,358,085	11,904,209
Alabama	1,129,275	987,254	1,265,953
Arkansas	676,156	642,322	847,312
Florida	59,488	58,586	64,131
Georgia	1,707,310	1,766,070	1,868,963
Louisiana	234,468	248,643	405,603
Mississippi	1,066,946	956,509	1,441,947
North Carolina ...	664,434	581,954	615,736
Oklahoma	868,928	514,535	494,984
South Carolina ...	1,108,967	1,064,810	1,134,183
Tennessee	269,657	221,465	302,627
Texas	2,849,911	2,262,938	3,368,874
All other States ..	62,944	53,029	63,956

There is every probability of the Government's estimate being more than realized, as its estimate for the South Atlantic States, on the basis of 500 pounds gross weight, is already accounted for, while the other States are not far behind, many of which will be in by January 1st, except Texas, which State, however, usually gins until March. The fact that the crop promises to be in the neighborhood of 12,000,000 bales, now that the supply is known, the future of the market will depend to a great extent on the character of the demand to be had for spot cotton from spinners. Thus far this season mill takings are less than last season—4,096,000 against 4,195,000 bales.

Total spinners' takings of American cotton last season were only 11,274,000 bales, and as they are 99,000 bales less than one year ago to date, it follows that a commercial crop will be more than ample to meet requirements of the world under existing conditions—forced economy.

Retail business in cotton goods has been satisfactory this Fall, but the export trade has been light, very little having been done for account of the Orient. Moreover, jobbers are not disposed to replenish shelf stocks with high price goods, and spinners are not stocking up with finished material made of the dear raw article. According to reports, the demand for prints has only equaled about one-half of the mill production, and it is said that unless there be an improvement in the demand with the turn of the year, further curtailment will be resorted to by New England and Southern mills.

In Continental Europe, trade conditions, while not so unfavorable as in the United States, are, nevertheless, unsatisfactory, especially in France. England, therefore, has been the only country to enjoy prosperity in the textile line, Manchester having been active until of late. Recent advices, however, are not so encouraging. Therefore, taking all in all, it will be seen that while about 30 per cent. of the cotton industry has fared well during the first third of this season, 70 per cent. has remained unsatisfactory, and the outlook, as a whole, is not encouraging to the spinner, and we are not surprised to see mill takings to date smaller than one year ago. It will only be 60 days or so when prospects for the new crop will have become a factor in the market.

In regard to the outlook for the next crop, advices from the interior, especially from the Southwest, and particularly from Arkansas, Oklahoma and Texas, are to the effect that preparations for the next crop are being conducted on a large scale, plowing being under way in many sections, and it is stated that there will be a very large acreage pitched in cotton next Spring, and if followed by favorable growing weather, will probably serve to lower values, present and prospective.

THE KNIT GOODS MARKET.

The three features which stood out most prominently in the knit goods market during the past month were the excellent demand for silk hosiery, the very poor trade in cotton hosiery, and the steady demand for woolen, worsted and cashmere goods. The New York trade which sets the fashion, decreed that silk hosiery should be the thing, and the belief was prevalent in many quarters that this fashion would spread all over the country and in a measure spoil the prospects of doing business in the cotton hosiery line. While this theory may have been true to a certain extent, yet the great mass of American people will not give up the use of cotton hosiery altogether for the less comfortable silk article.

The beginning of the month found the hosiery market in a very unsatisfactory state, showing a great deal of irregularity both in the buying of spring and fall goods. The demand for 50 cent silk hose was very apparent during that period, and was the cause of much conjecture on the part of jobbers and manufacturers as to the probable outcome of this continued demand. Another cause of dissatisfaction was the very low range or prices of cotton hosiery. Selling agents have found it impossible to advance these prices to a 15-cent cotton basis, and with the continued firmness in the primary market and the yarn division, many people are wondering how some of the knit goods mills are going to deliver the goods on contract and come out whole. It is very probable that the buyers will become more anxious as the date for delivery grows near, and they will in all probability use their best efforts to hurry deliveries as much as possible, in order to secure at least a partial amount of the order placed at the low figures.

It is predicted by many that with the continued stability of the cotton market, the chances for advancing prices in

the hosiery markets are very good, although low-end hose and half-hose are expected to remain at about the same figures for fall 1911 as they were for the past season. The satisfactory conditions reported in the woolen, worsted and cashmere lines was due in a large measure to the activity of salesmen in the West and other sections of the country, who placed a fair amount of business in these lines and at prices which were very satisfactory to manufacturers. The representatives were not backward about emphasizing the shortage in these lines which occurred this fall, and gave the prospective purchaser every reason to feel the necessity of placing his order for these lines of goods at this time.

Fleeced lined merchandise apparently surprised a great many who had expressed such pessimistic opinions as to the success of this style of hosiery for 1911, the fact being that the season started out with fleece lined goods in as good demand as was the case a year ago.

The middle of the month witnessed a healthier tone to the market and a consequent change in the views of selling agents from apathy and uneasiness to one of confidence in the future. Fleece lined hosiery moved along in a very satisfactory manner, though not in large quantity, and in a manner which met the aproval of the manufacturers. Owing to the fact that other lines of hosiery had just been opened up a short while, no definite results were known, but it was confidently expected that some nice orders would appear in a short time.

The latter part of the month was rather dull, as is characteristic in the district during the holiday season. It was about time for selling agents to pay more attention to duplicate spring order business which had been neglected for some time, owing to the prominence which the fall season always demands at the opening. It is expected that a good duplicate business will be put through from now on to the end of the season.

THE YARN MARKET.

The chief characteristic of this market during the past month was the exceptional dullness, which was more or less interspersed with hand to mouth buying. There were no bright spots in the market with the possible exception of a demand from underwear mills. Spinners continued to hold their position of firmness in regard to prices, which were in most instances from one cent to two cents above the ideas of the buyers. The spinners believe, however, that the buyers are in need of yarns, and the buyers are equally positive that the spinners are in need of contracts; and it was a question of which of the two opposing sides could hold out the longer. The buyers were firmly convinced that the end of the year would witness a downward tendency in the price of yarns, and it was believed that this conviction was instrumental in a great measure in delaying purchases other than for their pressing needs.

The fact is that the majority of yarn mills have had to buy cotton on a 15 cent basis for the present season, which is sufficient reason to assume that the spinners will either demand the prices at the present level or shut down their mills. The experience of the past year has been bought by many of the mills at a rather dear price, and that they will profit in the future by this experience is exhibited in the firmness with which they are demanding prices that will at least allow them to come out even in the operation of their mills. While the spinners not being in intimate contact with buyers, were maintaining their position of firmness, some of the selling houses having stock yarns on hand and listening to the predictions of lower prices made by the buyers, were persuaded to make concessions on small orders from the quoted prices, and it was this business which constituted the majority of the hand-to-mouth buying during the month.

The first of the month witnessed a moderate amount of business put through in small lots of 5,000 to 10,000 pounds, and even with this small amount of business there was quite a good deal of bartering before the sales were finally consummated. It was claimed that the number of small orders for yarns indicated that there was a demand in the market, but it was not sufficiently pressing to induce buyers to purchase more than was necessary to meet their immediate needs. The idea that prices would be considerably lower after the end of the year became rather prevalent during the first two weeks of the month, and was accentuated more and more as the month wore on. This fact, however, had very little effect upon the asking prices of spinners.

The middle of the month found the conditions little changed except possibly that the outlook was a little more mixed and unsatisfactory than for a long time. Stock yarns played the important role during the month, being obtained from selling agents at a slight concession from the asking prices of spinners. It was admitted that more or less inquiry was made for yarns during the middle of the month, but very little business eventuated, owing to the disparity in the ideas of spinners and buyers.

The last two weeks of the month were naturally dull, co-incident with the usual holiday quietness in the district. From a careful analysis of the situation it would seem that if the spinners can maintain their position for another month, success will undoubtedly be their reward, as buyers will necessarily have to come into the market to secure their requirements needed for spring business.

The following are the New York quotations at the end of December:

SOUTHERN SINGLE SKEINS

4s to 8s	21 @21½	22s	24 @24½
10s to 12s	21½@22	26s	25 @25½
14s to 16s	22½@23½	30s	26 @26¼
20s	24 @		

SOUTHERN TWO-PLY SKEINS.

4s to 8s	21½@22	36s	29 @30
10s to 12s	22½@23	40s	31 @32½
14s	23 @23¼	50s	36 @38
16s	23 @23½	60s	44 @46
20s	24 @24½	3-ply 8s upholstery	22½@
24s	25 @25½	4-ply 8s upholstery	22½@
26s	25½@25¾		
30s	26 @26½		

SOUTHERN SINGLE CHAIN WARPS.

8s to 10s	21 @22	22s	24½@24¾
12s	22 @22½	24s	25 @25½
14s	22 @22½	26s	26 @26½
16s	23 @23½	30s	26½@27
20s	23 @24	40s	32 @--

SOUTHERN TWO-PLY CHAIN WARPS.

8s to 10s	21 @22	26s	26 @26¼
12s to 14s	23 @23½	30s	26 @26½
16s	23½@24	40s	32 @32½
20s	24 @24½	50s	37 @38
24s	26 @26¼		

SOUTHERN PEELER FRAME CONES.

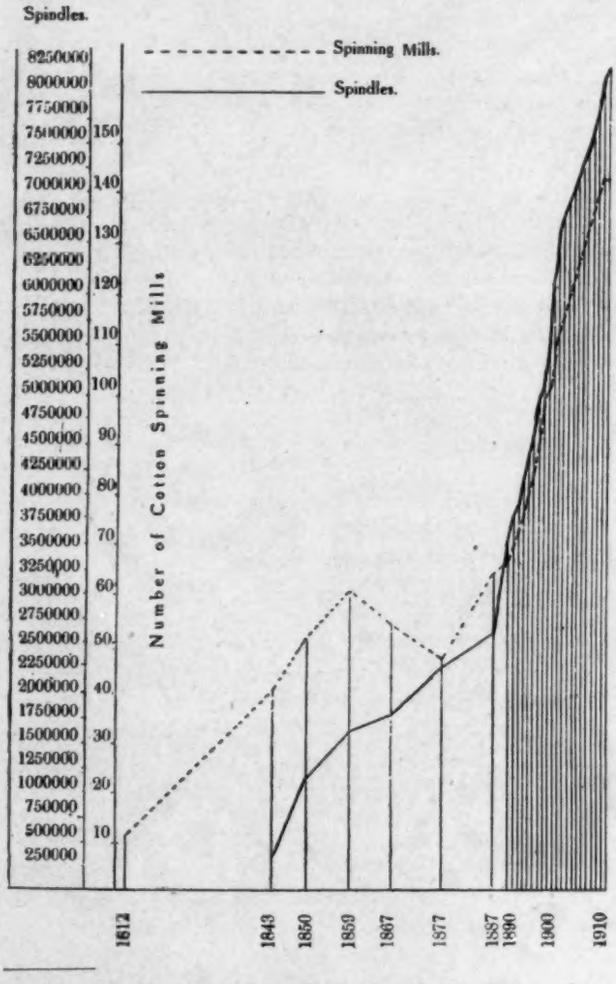
10s	22¼@	20s	24 @24¼
11s	22¾@	22s	24¼@24½
12s	22¾@	24s	24¾@25
14s	23 @23¼	26s	25 @25½
16s	23½@	28s	25¾@26
18s	24 @24¼	30s	26½@27

COTTON CONSUMPTION AND PRODUCTION IN RUSSIA.*

BY ALEXANDER J. KUSNETZOFF.

One of the principal commodities of the world's market is undoubtedly cotton, the consumption of which is increasing every year. The cotton industry progresses with gigantic steps; technical improvements reduce the cost of production of yarns and cloth, whilst the progress in the means of transit opens up new markets for the sale of cotton goods. The consumption of cotton will be constantly on the increase, if one remembers that of the 1,500,000,000 inhabitants of this earth there are only 500,000,000 completely clothed, whilst 750,000,000 partly clothed and 250,000,000 do not possess any clothing whatsoever. In order to provide clothing for the whole of humanity we would require an annual production of at least 42,000,000 bales of cotton, that is, about 15½ pounds for every human being. If we take the number of inhabitants of Russia to be 140,000,000, we would require at the above rate, in order to clothe the entire Russian population, 55,000,000 puds* (2,170,000,000 pounds). The annual consumption of cotton at present in the entire Russian Empire is only 22,000,000 puds (794,860,000 pounds).

Cotton cloth, woven in Asia, was known in Russia some



*Presented at the Seventh International Cotton Congress at Brussels.

*1 Pud=36.13 pounds.

400 years ago. About the middle of the sixteenth century woven goods are supposed to have been imported also from the west, via Archangelsk. During the reign of the Czar Alexei Michailowitsch attempts were made in Russia to weave cloth from imported yarns, and they even went so far, by the desire of the Czar, as to embark on a cotton-growing experiment in the neighborhood of Moscow; of course, the result was not successful. Two centuries later the manufacture of cotton cloth had become well established in the Moscow and the Vladimir Government districts, at the beginning as a cottage industry only.

In 1808 the first cotton-spinning mill was erected in Moscow, and three years later 11 cotton-spinning mills were in existence. After the gigantic fire of Moscow in 1812 this industry extended to the districts of Serpuchow, Susdal, and especially to Schuja-Iwanowo, which even today is the center of the industry.

A strong impetus to the further development of the industry was given by the abolishment in England, in the year 1842, of the export duties on spinning machinery. The following figures show this progress in the increase of the number of spindles:

1812	11	spinning mills,	? spindles.
1840	20	"	? "
1843	40	"	350,000 "
1850	50	"	1,100,000 "
1859	60	"	1,600,000 "
1887	63	"	2,538,467 "
1890	66	"	3,457,116 "
1897	105	"	5,338,375 "
1900	115	"	6,554,597 "
1908	140	"	7,817,710 "
1909	142	"	8,129,091 "

According to recent particulars supplied by the Moscow Cotton Committee, this figure had increased on March 1, 1910, to 142 spinning mills, containing 8,200,000 spindles. Finland, with about 226,000 spindles, is not included in this figure. During the "sixties" the production had decreased, owing to the American War, but this crisis was the direct cause of the promotion of cotton growing in Russia.

The demand for cotton in Russia, and its steady growth, is shown by the following figures:

1855	1,500,000 puds	=	54,195,000 lbs. (Amer.)
1860	2,500,000 "	=	90,325,000 " "
1870	4,000,000 "	=	144,520,000 " "
1875	4,500,000 "	=	162,585,000 " "
1880	8,500,000 "	=	307,105,000 " "
1886	10,000,000 "	=	361,300,000 " "
1890	7,000,000 "	=	252,910,000 " "
1894	12,300,000 "	=	444,399,000 " "
1901	16,700,000 "	=	603,371,000 " "
1902	15,000,000 "	=	541,950,000 " "
1903	22,000,000 "	=	794,860,000 " "
1904	20,100,000 "	=	726,213,000 " "
1905	17,000,000 "	=	614,210,000 " "
1906	20,900,000 "	=	755,117,000 " "
1907	20,800,000 "	=	751,504,000 " "
1908	22,000,000 "	=	794,860,000 " "

This demand is covered partly through our own production of cotton, and partly through importation of foreign-grown cottons. During the past ten years there has hardly been any increase in the amount of cotton imported; for instance, in 1897 and 1907 the same quantity of foreign cotton, viz., 346,848,000 pounds, has been imported. If we compare this figure with the number of spindles in the years 1897 (5,332,375 spindles) and 1907 (7,600,000 spindles), we readily see that the consumption during this period of the additional spindles has been covered entirely by increased growth of Russian cotton.

The enormous number of the population of Russia, its

great yearly increase, as well as the constantly-growing consumption of cotton per head of population, will undoubtedly require twice or three times the amount of raw cotton. This might lead people to imagine that we shall suffer sooner or later from a cotton famine. If we, however, make ourselves acquainted with the climatic conditions of the different parts of the Russian Empire, we soon find that there are enormous stretches of land in Turkestan (Central Asia) and in Transcaucasia which await their being made use of for cotton growing. Experiments have even been made to introduce this useful plant on the coast of the Black Sea. A great portion of the cotton crop of Russia, grown originally from American seed, is not in the slightest inferior in length, lustre, and strength of staple to the best American kinds; in fact, most of the Russian spinners prefer, at equal prices, for yarns of medium count (32's-34's water and twist yarn), cotton grown in Turkestan to American good middling, 1 3/16 inches in length.

The oldest and most important cotton district is Turkestan (Central Asia); after this in importance comes Transcaucasia. The following will show the great development which has taken place in the latter country: In 1888 about half a million puds (18,065,000 pounds) were grown, whilst in 1906 the crop amounted to 2½ million puds (903,250,000 pounds) lint, but this does not at all exhaust the productiveness of that country. In 1906 an area of about 35,000 dessjatines (94,500 acres) was put under cotton, whilst there still remains another 500,000 dessjatines (1,350,000 acres) suitable for the same purpose, awaiting only irrigation in order to be able to produce good cotton. There is not the least doubt that there is an ample supply of water for irrigation purposes, owing to the many streams and rivers which traverse the country. A still more favorable prospect exists in Russian Central Asia, which supplied us in 1884 with only 10,000 puds (361,300 pounds), and this from an area of 457 dessjatines (1,234 acres), whilst in 1907 more than 300,000 dessjatines (810,000 acres) were put under cotton.

The cotton area of Turkestan has been increased in a normal manner, the local and climatic conditions being perfect. There are a small number of frosty days, strong sun rays, cloudless skies, and ancient irrigation works, which assure us good crops, and last, but not least, the native population has been trained for many years to the cultivation of cotton. Although Russian Central Asia supplies Russian mills with the largest portion of indigenous cotton, Russia is far from having arrived at the limit of productiveness. Not even all the irrigated land is planted with cotton. Much of it grows wheat, djugara (a kind of rice), rice, and other produce. In Ferghana alone 700,000-750,000 dessjatines (1,890,000 to 2,025,000 acres) of irrigated and cultivated lands exists, and only 35 per cent. to 40 per cent. of it produces cotton; the remainder grows corn and other produce. Wheat has been grown on about 150,000 dessjatines (405,000 acres). It would only be necessary to construct a cheap and easy connection with the districts of Russia and Siberia which produce at present cereals in order to re-introduce cotton growing at once in the larger portion of the fields of Turkestan, as cotton growing is much more remunerative than wheat.

In March, 1907, a number of firms approached the Minister of Commerce and Industry with a view of explaining to him the necessity for constructing a railway from Taschkent, via Werni, to Semipalatinsk and Omsk (Siberia). Such a line through the rich corn-growing districts of Siberia would greatly increase the acreage of cotton, and would open up enormous districts for commercial pursuits. It must also be stated that so far hardly any artificial manure has been used, and for this reason the yield per acre in this most fertile alluvial land is still small. Only during the last few years has the population begun to take an interest in artificial manures. Whilst with the old method one dessjatine produces between 16 and 30 puds of ginned cotton fiber (equal to about three-eighths or five-eighths of an American bale per acre), we find that the yield of well-matured and properly-cultivated fields has gone up to 60 puds per dessjatine, equal to 1½ bale per acre. It is, of course, not to be supposed that the whole of the area can be brought to yield so much, but even an increase in production of about 3 puds per dessjatine would give us already one million puds more (36,130,000 pounds).

In Turkestan are at least 1½ million dessjatines (4,050,000 acres) of land suitable for cotton growing; not included in this estimate are about 200,000 dessjatines (540,000 acres) situated in Buchara. There is sufficient water for irrigating all this land; suffice it to state that the principal rivers, Sir-Darja and the Amer-Darja, are able to supply during the growing period more water than would be necessary for irrigating the whole of the above-stated area. The highest level of water happens to be reached during the growing period of the cotton plant, which, of course, facilitates the work of irrigating. It is to be regretted that the slow development of irrigation retards the exploitation of suitable land in Central Asia. Only last year a society was formed in Moscow, called the "Moscow Irrigation Company" (to which many prominent spinners belong), which intends to begin the work of irrigating Turkestan. This Government is at present engaged in preparing the necessary laws, on the basis of which Russian and foreign companies will be able to construct canals, and it is to be hoped that these laws will soon be published. We shall then see that not alone Russian capital, but also the cheaper foreign capital, will be devoted to this fertile district. Summarizing the aforesaid, one is perfectly justified in asserting that the artificial irrigation in Russian Turkestan and Transcaucasia will be the means of an enormous progress towards the increased production of cotton, with the result that these countries will not alone be able to supply the entire demand of the Russian cotton industry, but will also have a surplus for other countries.

COTTON WAREHOUSES FOR MOSCOW.

A petition has been made by the Kokand Chamber of Commerce for the establishment at or near Moscow of a cotton depot, with spacious warehouses for the reception of cotton from central Asia. The necessity for such a depot is recognized on account of the fine cotton crop of 1909, and the quite successful realization of the crop at high prices, due particularly to a poor crop in America and the consequential high prices of cotton. It is thought, that these conditions will serve as an incentive to a further increase of the cotton area in the Turkestan territory. In order to prevent the stranding of cotton at way stations awaiting transportation, and to reach an equitable adjustment in its transportation by the railroads, it seems necessary to establish a cotton depot with capacious warehouses at or close to Moscow.

COTTON MANUFACTURING.

LENO CLOTH WEAVING.

METHOD OF PRODUCING FANCY LENOS ON ONE SET OF DOUPS.

(Contributed exclusively to COTTON.)

BY PROF. THOMAS NELSON.

PART V.

In order to ascertain the number of sets of doups used for a leno fabric it is necessary to examine the crossings made by the crossing ends. Each end that has a different crossing will require a separate set of doups. This method is correct in the majority of cases, but there is an exception to this which will now be discussed.

For the purpose of more clearly illustrating why this exception is made, an outline of a leno pattern is given at Fig. 48. This pattern consists only of the crossing ends forming diamonds, as shown, and then the two ends that formed the diamond running together. The ground weave, which on these weaves is usually plain, is left off of the diagram in order to show more clearly the outline of the pattern.

This pattern can very easily be made on three sets of doups, and if the regular rule for making leno was followed out it would be made on this number of sets as indicated by the pairs of ends 1, 1; 2, 2; and 3, 3. The changes made to form this leno are numbered at side of design from 1 to 16. It will be noticed on examination of these changes, that on the odd number of changes 1, 3, 5, etc., throughout the pattern, all the crossing ends work the same. It is this fact which enables us to make a pattern of this description on one set of doups. Every crossing end, however, that works differently will require a separate crossing harness. For this pattern there will, therefore, be one doup and one doup harness; standard harness, usually two for a pattern of this description; and three crossing harnesses.

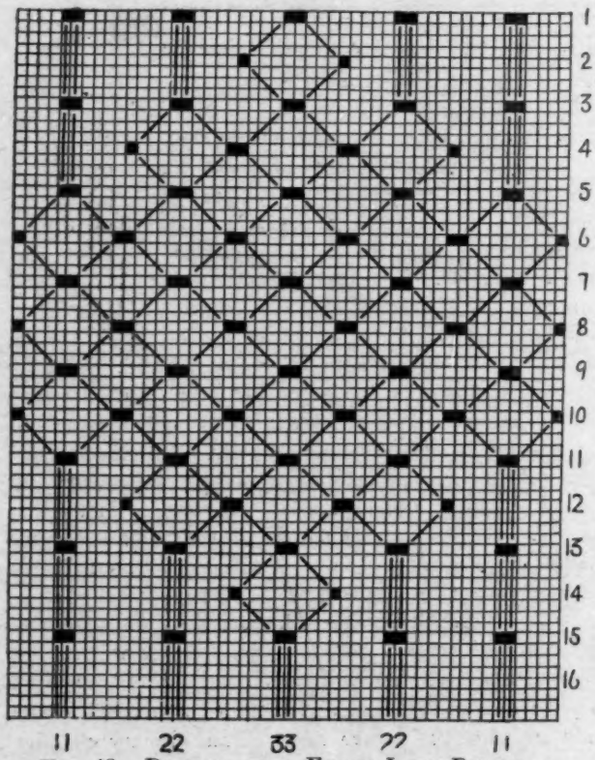


FIG. 48. DIAGRAM OF A FANCY LENO DESIGN.

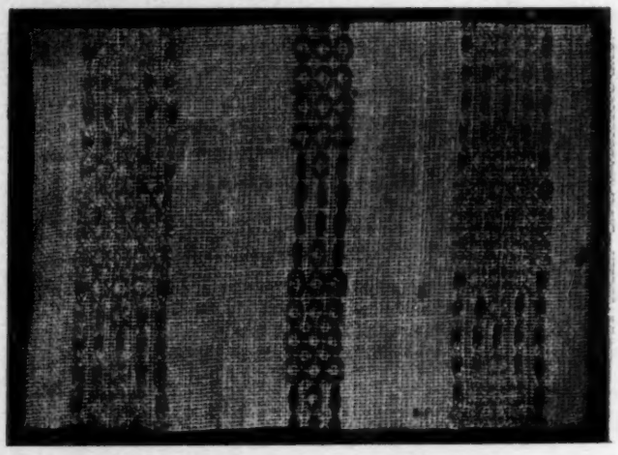


FIG. 49. SAMPLE OF A FANCY LENO FABRIC.

Fig. 49 is a sample of fancy leno fabric, the wide stripe being made exactly the same as in the sketch Fig. 48. Fig. 50 is the drawing-in draft for the fabric, and Fig. 51 is the chain plan. An explanation of how these patterns are made will now be given. It will be seen From Fig. 48 that the crossing ends are drawn through the harnesses in pairs, and outside the standard ends. This being the case, in order to bring the crossing ends from the outside to the inside of the standard ends, the doup and doup harness must be lowered. This is the crossed pick and is made on all the odd number of changes as indicated at the side of Fig. 48. On the open pick, the doup is lowered, and any of the crossing harnesses which are required to form the pattern.

Take for example the top diamond in the diagram. The first change is made by lowering the doup and doup harness, which produces a crossed pick. The second change is made by lowering the crossing harness and doup for producing the open pick. As only one diamond is required to be made the crossing harness No. 9 in Fig. 50 will be lowered and this will bring these two crossing ends to the outside of their standard ends. On the next change or No. 3, the crossing ends will be pulled to the inside of the standard ends and the diamond will be formed.

The special point to be noticed when making the open pick is the following: When the doup is lowered, only those crossing ends are taken to the bottom of the shed that are drawn through the crossing harness which is lowered. All the other crossing ends are kept raised and the doups are loose on the top of the yarn.

The following are the changes as they occur in Fig. 48, and in the fabric, Fig. 49. (In Fig. 48, the solid rectangles are used to show how and where the crossing ends

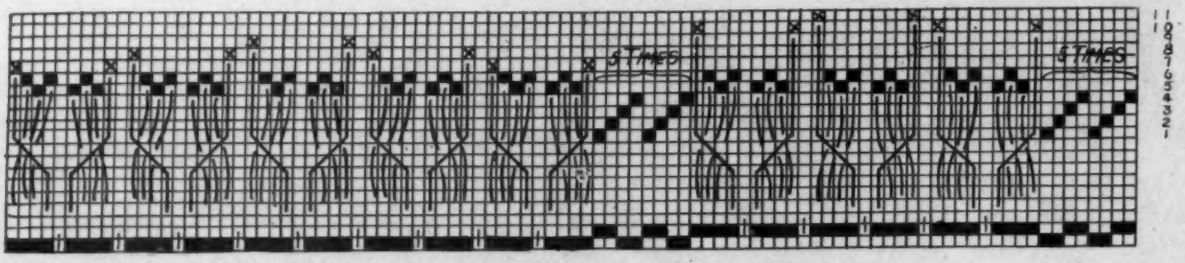


FIG. 50. DRAWING-IN DRAFT FOR SAMPLE FIG. 49.

cross over to form the diamond; and really represent the crossing ends lowered.)

The first and all odd number of changes: Doup and doup harness are lowered.

2nd change—Doup and No. 9 crossing harness are lowered.

4th change—Doup and Nos. 8, 9 crossing harness lowered.

6th change—Doup and Nos. 7, 8, 9 crossing harness lowered.

8th change—Doup and Nos. 7, 8, 9 crossing harness lowered.

10th change—Doup and Nos. 7, 8, 9 crossing harness lowered.

12th change—Doup and Nos. 8, 9, crossing harness lowered.

14th change—Doup and No. 9 crossing harness lowered.

16th change—No crossing harness lowered.

The narrow stripe in Fig. 49 is made on exactly the same principle by the addition of two more crossing harnesses, as is seen by the drawing-in draft and chain plan.

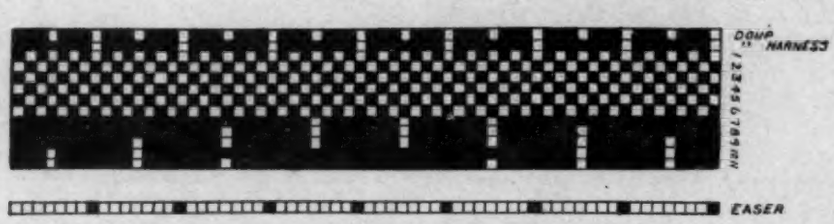


FIG. 51. CHAIN PLAN FOR SAMPLE FIG. 49.

KNITTING

THE CHARACTERISTICS OF KNITTED TEXTURE.

(*Contributed exclusively to* COTTON.)

BY WILLIAM DAVIS, M. A.

In this paper I shall endeavor to outline briefly the chief characteristics of the knitted texture, and to estimate its true place as a clothing medium. A careful consideration of the abnormal growth of this industry in recent years will lead to the conclusion that it is becoming more and more important, and that its scope is being greatly extended. It will be instructive to examine some of the causes of this development, and consider the further possibilities. Let us note at the outset the main points of distinction between woven and knitted cloth, and make other comparisons between the two which may help to elucidate the question.

Woven cloth, the product of the loom, is constructed with a longitudinal and transverse set of threads, the one set being intersected with the other in the process of weaving, to a large extent independently of each other. The density of either series can be increased or diminished within certain limits without disturbing the balance of parts. The omission of a thread makes the fabric imperfect, but it still remains a fabric.

The knitted texture is entirely different in build to the woven fabric. Constructed in its simplest form from a single thread folded into rows of loops, each loop or row of loops depending upon that which precedes it, the new loops being drawn through the old. The parent thread thus constitutes both the longitudinal and horizontal element in the cloth. Sever the thread at any point, and the loops give way in all directions in proportion to the amount of strain put upon them. If a loose end be caught up, the whole structure may be completely disintegrated. For this reason, the fabric in its elementary form does not adapt itself to garments from which a large amount of wear and tear is exacted. Side by side with this disadvantage, however, we have a corresponding advantage, which accounts for the place occupied by the knitted structure in wearing apparel. The dependable nature of the texture and the manner in which one loop is connected to its neighbor above, below, and on either side of it, lie at the root of its well-known elasticity and yield. Garments of underwear being in close contact with the cuticle of the wearer, and touching the body at every part, require a texture which shall be elastic and yield to the varied movements of the body and positions of the limbs. This primary qualification is admirably fulfilled in the knitted fabric. Loop

Read before the Textile Institute at Manchester, Eng.

hanging on loop, and one row upon another, establishes a delicate principle of equilibrium by which a loop, when disturbed, at once seeks to right itself. In this way the person is not made uncomfortably conscious of wearing the garment, a matter of prime importance in any article of clothing.

ELEMENTS OF KNITTED FABRIC STRUCTURE.

To consider how this principle of equilibrium may be successfully established, it will be necessary to examine the factors involved in elementary fabric structure. Let us consider the form of the loop in an ideal knitted fabric. There exists the horizontal and vertical factors in the loop, and what should be generally aimed at is a loop symmetrical in form; that is, it should cover approximately the same space in both vertical and horizontal directions. When these conditions are fulfilled, the elastic and yielding property will be more evenly balanced. Instead of the symmetrical form, however, the loop may (1) assume an elongated shape, where it covers more space vertically than horizontally; (2) the horizontal measurement may exceed the vertical. The factor which largely determines the particular form the loop may assume is the relation of the size of the yarn to the sett of the loops, otherwise termed the gauge. The number of loops covering a given space must bear a certain ratio to the size of yarn. Should the thread employed be too fine in diameter for the sett of the loops, the resulting fabric will be loose and unstable. It will tend to be elongated in appearance, and will yield readily in any direction without any attempt to readjust the equilibrium of its parts. On the other hand, should the thread employed prove too thick for the sett of the loops, the latter will tend to be dumpy, and the cloth will appear congested, only yielding with difficulty. It is evident, then, that the ideal hosiery loop lies between these two extremes, and that the best results are to be expected when it approaches the symmetrical.

The determination of the relation of the diameter of yarn to the sett of the loops is beset with many practical difficulties. The gauge is inseparably connected with the type of frame—a coarse frame producing coarse work and a fine frame fine work. A loom may be made to weave various fabrics fine and coarse by using different gears. The knitting machine, however, has its parts arranged for a certain gauge, so that a fine gauge frame must be employed for fine fabrics, and a coarse gauge frame for coarse fabrics. The sett of gauge of the loops is thus determined by the machine selected. In the knitting process the loops are made on needles, the upper portions being over the needles, and the lower portions between them. As the thread is fed over the needles, parts called sinkers emerge and push the yarn between the needles. The question of sett then resolves itself into the actual space available between needle and sinker for the passage of the thread, after allowance has been made for the space occupied by the breadth of the sinkers and diameter of the needles. Knowing accurately the machine maker's particulars of these portions, we can at once estimate the space set apart for the thread to occupy.

There are, however, various other points peculiar to the knitted fabric to be considered. In the loop formation the thread is subjected to a great amount of strain, which imposes a tax on the elasticity and staying power of the yarn. Unless it has a certain amount of yield, it can not be worked satisfactorily. The threads being strained in this manner at every point causes its diameter to be reduced considerably, so that an allowance has to be made on the ordinary calculated size. This allowance varies with the degree of elasticity possessed by the thread, and also by the nature of its surface and material. This matter is somewhat compensated for by the fact that the passage of the thread between needle and sinker is oblique and not straight like that of the thread through the loom reed. Then again the sett depends on whether the yarn is worked in a dry or a lubricated condition. Hard and brittle materials can not produce a satisfactory fabric unless previously treated with some lubricant. This frequently introduces irregularity into the shape and measurement of the fabric. Finally, the take-up motion of the machine is negative, and can be increased or decreased by adding or removing weight, whilst the fabric contracts in length and breadth when removed from the machine. I mention these factors to show that the problem of setting, difficult enough in woven cloth, is still more so in the knitted cloth. The endeavors to reduce the subject to a definite system have so far met with very moderate success, and the manufacturer is largely dependent on experience and observation for the correct sett of his fabric.

FIBER AND YARN.

One of the first requirements in a hosiery material is that it shall possess the absorbent quality in a high degree. The reason for this is obvious when we regard the fabric from the point of view of its hygienic function. Resting as it does next the body, it receives the perspiration and leaves the pores free for their other functions. Similarly a soft material with a full and spongy handle is sought after in order that the body may not be irritated. To effect this, cotton is often blended with wool, the wools selected generally being merino. To attain this end, and also to produce a soft, full yarn, the process of manufacture is somewhat modified. The woolen yarn produced in the ordinary way proves usually too fine in diameter or too hard in twist, whilst the ordinary worsted yarn is too bald in appearance. The yarn is often produced by an intermediate combing process, with some of the stages omitted and a soft twist imparted.

Another feature of the knitted fabric consists in its extreme capacity for felting. This arises from the character of the structure, the arrangement of the loops lending themselves to sliding into each other, and thus contracting in length and breadth with a corresponding increase in thickness. What further accentuates this tendency is the frequency with which underwear must be cleansed, so that an ordinary garment diminishes in the ratio of the number of washes it receives, these being more frequently than not administered with more vigor than prudence. This has given rise to the now almost universal practice of treating the woolen garment so as to maintain a uniform size and thickness during its period of wear. The articles are first immersed in a three per cent. solution of hydrochloric acid, and then placed for some time in a solution of bleaching powder, after which they are again placed in the acid bath, and thus rendered incapable of further shrinkage. The process certainly does not improve the clothing qualities of the material, and if the greatest care be not exercised in details, the fiber will certainly be deteriorated. One of the commonest defects is the occurrence of yellow discolored patches on the goods, and a cold, harsh handle. On

account of these considerations, goat wools, such as alpaca, llama, vicuna, and cashmere find a large use in hosiery.

THE RELATION OF COLOR TO THE KNITTED TEXTURE.

The amount and nature of color introduced into knitted goods depends on whether the goods are intended for underwear or outer garments. For underwear the range of coloring is not great, a pure white being employed for the majority of textures. To attain this, bleaching is largely practiced, either by sulphur or the liquid method. Of the two methods, the latter is more largely used on account of a better and more permanent white being produced. The chemical employed is either hydrogen peroxide or sodium peroxide. Alpaca, vicuna, and camels' hair are used in their natural brown or other tint, whilst other effects termed "natural" are produced by melanging the fiber, pale and delicate tints of brown, blue and salmon being the more common.

Solid colors are also frequently introduced as stripes on the machine. The dyestuffs employed must obviously be fast to rubbing and washing. If the first requirement be neglected, a color cake is deposited on the body, and if the second be not observed the color vanishes after a few washes. Fastness to light, while desirable, can not be said to be indispensable. Formerly the scheme of color combination was decidedly crude and devoid of taste. Loud and showy effects distinctly displeasing to an educated color sense were the rule. More attention is now being devoted to the matter, especially in the direction of better balanced effects. Colors of a primary or secondary nature still predominate with their shades or tints, the chief type being stripes introduced on a white ground.

The nature of the knitted fabric renders the production of horizontal stripes of color much more easy than that of vertical stripes. The course of loops is formed in a horizontal direction, and should be uninterrupted. If the course has to be made in sections of different colors, as is the case of vertical stripes, the progress is very slow and the fabric imperfect at the junction of the stripes. A more convenient mode is to introduce the colors as extra threads, small in diameter and bright in hue. In this way stripes of various colors can be attained in a vertical direction, variation being obtained by giving the lines a zig-zag character, an arrangement to which the machine construction readily lends itself.

The coloring of knitted fabrics intended for outer wear is entirely different to that of underwear. At the outset the tone is lighter or darker, as is required for summer or winter use, whilst the colors must be fast to light. From the considerations above referred to, the effects rarely take a check form, nor do they occur in solid lines. Variation in stitch breaks up the color effect, and causes them to show in minute portions of varying sizes. Thus colors producing a displeasing effect when occurring in a continuous way can often be used with good results in a fancy stitch. The effect of employing too great a melange of coloring is often modified by trimming the edges of the garment with black, white, or a solid color, in harmony with the prevailing tone of the fabric.

(*To be Continued.*)

DYEING, BLEACHING AND FINISHING.

BLEACHING AGENTS FOR COTTON.

(*Contributed exclusively to* COTTON.)

BY CHAS. A. HAEUSSLER.

Anyone who has had occasion to visit bleachers often will have discovered that scarcely two of them proceed alike. Each one thinks that his is the only right way, and preserves it as a secret. This is particularly true of the English and French bleachers; but it applies also to the majority of German and Austrian establishments.

That the bleaching process is not so simple as it appears in the books is proven by this diversity of usage. We have great variety in the sort of cotton used, and in the form in which it comes to the bleacher. These differences entail not only a divergence in methods of bleaching, but in the subsequent rinsing processes. One thing, however, in which all bleachers are agreed is the absolute necessity of a preliminary thorough scouring, whether with carbonate or caustic soda, or with lime, with or without pressure.

If it is merely a question of getting a half-white, a single scouring of the goods with 2 per cent. of their weight of soda ash is sufficient. At the open boil, the time required is from 8 to 12 hours; but the same effect is reached in 3 to 4 hours under the pressure of two or three atmospheres. For a three-quarter bleach, the scouring is usually done upon one-half to three-quarters per cent. of caustic soda, boiling under two or three atmospheres pressure for three or four hours.

After the dark brown liquor is run off, a second scouring with one per cent. of soda often follows, as it removes the residual coloring matter better than hot water. This treatment is sufficient for a full bleach, in the case of cops and loose cotton; but hard, twisted yarn, heavy embroideries, etc., must be given a repetition of the first scouring and bleaching to get a good white. With cloth this repetition is a general rule, and can be executed without much danger, as the resulting inevitable tenderness of the fiber is of less importance than with yarn. This must be treated so as to finish bleaching in a single series of operations.

The bleaching agent used next demands our attention. Many ask what more than bleaching powder is required. It is true that it is cheap and efficient, but customers nowadays make such requirements as regards color, handle, strength, and finish, that different bleaching agents have to be used, under different circumstances. Why do so many bleachers convert their bleach into sodium hypochlorite by mixing it with carbonate of soda? To precipitate all the lime, a weigh of soda, nearly equal to that of the original bleaching powder must be used, and in addition the Eau de Javelle costs about twice as much as the bleaching powder alone, but a great advantage is gained of bleaching in baths free from lime. The goods come out brighter, probably because they are free from insoluble compounds formed by the lime from the coloring matter of the cotton, which are very difficult to rinse out. Hypochlorite of potassium, got by mixing bleach liquor with carbonate of potash, is an even better bleaching agent than sodium hypochlorite, but the price is against it. Bleaching powder forms the raw material for a whole series of bleaching

agents, each of which has special properties. Thus, when its solution is mixed with sulphate of magnesia, of sulphate of alumina, or sulphate of zinc, a totally different liquor is obtained in each case.

The more readily decomposable a bleach solution is, the more quickly and energetically it bleaches. Additions of caustic soda or borax render the liquid more stable, but by increasing its neutrality makes it easier for it to give off oxygen, just as the action of light for the same reason will cause deterioration, making it advisable to keep bleaching solutions in the dark.

It is well known that either chlorine or oxygen can be obtained at will from a solution of bleaching powder. If acid is added to it, it evolves chlorine; but if it is boiled with water and a salt of cobalt, it gives off oxygen only. It is highly probable that by the addition of certain salts to the bleaching bath the cotton can be subjected more to the action of oxygen than to that of chlorine. In the most modern of all bleaching agents, electrically prepared bleaching lye, there is a substance which exceeds in efficiency all the bodies we have as yet mentioned, and which is decidedly cheaper than Eau de Javelle. The only drawback of electric bleaching is that it cannot be bought ready-made, but must be prepared by the bleacher himself. Although the preparation is easy, it is shunned by many bleachers, who think they have enough to do as it is, and who do not care to lay in the necessary apparatus. This view of the matter is quite correct from the small bleacher's point of view, but just as erroneous in the case of larger concerns. It is impossible to insist too strongly on the advantages of electric bleaching where the establishment is large enough to work it economically, and it is hoped that the following description of its preparation as carried out in a very important bleaching house in Switzerland will prove of interest.

This plant produces 35 kg. of active chlorine per twelve hour day, which is as much as there is in 100 kg. of bleaching powder. The current, both amperes and voltage 120, is supplied from the public mains. The electrolyzer uses about 1¾ horsepower per hour. The solution is made up in the afternoon for the following day. 250 kg. of common salt are dissolved in 2,300 liters of water in a concrete reservoir, from which it is transferred by means of a rotary pump of bronze into the electrolyzer, whence it flows back again into the reservoirs after electrolysis. By morning or in twelve hours the brine has become a lye containing 15 per cent. of actinochlorine, and is ready for bleaching. It keeps all day without perceptible change. In summer, the temperature of the water being 15 degrees C., the bath should contain from 1½ to 2 per cent. of actine chlorine, but full 2 per cent. is necessary in the winter, when the water ranges from 5 to 10 degrees C. The goods are laid in the vessel with a perforated false bottom, and the bleach is kept constantly circulating through them by means of a pump, the process lasting about two hours in the summer and three in the winter. After rinsing the goods are scoured with a 2 per cent. solution of sulphuric acid, and after this has been thoroughly rinsed out, are blued with Methylene Blue.

Quite recently, chlorine, liquefied by pressure, has been offered in steel cylinders to bleachers. The price, however, (40 marks) seems at first sight prohibitive, as the active chlorine of bleaching powder costs no more.

The chlorine supplied in this way must be absorbed by caustic soda for use, as it issues from the cylinder. Hence we get Eau de Javelle without the troublesome insoluble lime residue attending its preparation from bleaching powder, but liquefied chlorine is too expensive at present to compete seriously as a bleaching agent, even if it did not require absorption by caustic soda. It has been suggested to lead the chlorine from the cylinder into plain water, but no one who has tried that plan once will care to try it again. The waste of chlorine is immense, and makes the atmosphere of the place unbearable. The bleaching power of the solution is, therefore, insignificant.

Practical Problems Discussed by Cotton's Readers.

Discussions of Mill Problems are Solicited for this Department.

TEXTILE SCHOOLS vs. MILL EXPERIENCE.

BY W. T. B.

It is not the intention of the writer to disparage in any sense whatever the value of the textile schools to the industry, but to discuss the advantages of textile schools as compared to mill experiences, and give one or two reasons why he believes the mill experience the better teacher. Having had both privileges it is my firm conviction that the mill itself offers the better inducements for one who wishes to learn the trade.

Without a doubt the textile school is a splendid and necessary adjunct to the textile industry, and without it the mills would suffer. There are two departments of the best textile schools that are essential to the industry as well as to the school. These are the designing and chemical departments. A detailed discussion of these two subjects is unnecessary, as most of the readers understand their purposes, yet the study of the subjects is not possible without instruction. For this, there must be men who have thoroughly mastered every branch of the subject. Special laboratories must be fitted up, and careful attention given to details; and one thing is called for that one does not get in the mill, namely, time for preparation, study and tests. Things that must be gone through with before the desired results are obtained.

The textile schools offer these advantages and one who is considering such a course of study, or of cloth analysis, which is really a part of the designing department, will do well to attend such a school and there equip himself in a thorough manner. But for one who is considering his preparation for the actual manufacture of cotton, woolen or worsted yarns and fabrics, the best place is the mill. The advocate of the school might say, "yes, that is true enough, but you must consider the scholastic advantages of the school." That must be admitted, but at the same time it cannot be denied for one minute that, with the increasing betterment all over the country, and especially in the South, of the State and city schools, one preparing himself for a business of any kind, has advantages that the boy of twenty years ago did not have. With this training which is equal and in many cases of higher advanced standing than this

scholastic inducement, it only remains to prove the superiority of constant association with machinery, and the treatment of the staple by the machine, over instruction, with a limited number of machines and equipment.

The subject cannot be treated as thoroughly in the school as it demands. The general plan and working of drafts, twirls, tensions and other change gears that one must be absolutely familiar with, can be mastered by one, either in school or out of school, if he has a reasonable amount of intelligence. And this one subject out of the hundreds that arise in the mill is given considerable attention, as it should be, in the textile school. One of the most decisive points for the mill educated man is the fact that the textile school graduates of average ability can not at once hold a position of much responsibility. This is not an opinion in any sense whatever, but it is a fact substantiated by the experiences of graduates of a textile school which the writer knows personally of. Of course many of the graduates and men who do not graduate, fall into good positions through the influence of relations, for it must be admitted that many students attending school have relatives high up in the mill world. But the facts of the case are, that men attending such schools have to enter the mill, as a rule, on the same level as an apprentice. One fact, which must be conceded, is that the textile schools turn out a more trained mind; but on the other hand, it must not be forgotten that the three or four years spent by the man in school have not been wasted by the man who entered the mill. And it is true beyond question, that those who have preferred the mill for a training place, have had considerable education in the State and city schools, and therefore some training.

The textile schools are doing a great good, and let us hope they will do even greater good. But to place the situation before the prospective student, and those wishing information on the subject, the question may be asked, is the school man competent to assume charge of a mill, as is generally supposed to be the case, and is especially thought true by the prospective student? It will be found that it is far easier to sit in the class room and have examples worked out for you, to have pictures drawn, and to spend an hour or two each day in the laboratory where demonstrations are given, than in spending a whole day, week, month and year in the mill where innumerable obstacles arise, and have to be met and solved each day.

One doesn't have a text book before him in the mill, nor an instructor to handle the situation for him, but he must be capable of coping with the breakdown, poor running of the work, dissatisfaction of the help, cost of manipulation of the plant, and many other features of a mill which are just as important. And there is only one way in which this can be done, and that is personal contact with the situation. The best way in which to prepare for the unexpected, is to be closely associated with these everyday occurrences, before being given such a responsibility.

To those who can afford the textile school after working in a mill for practical experience, my advice is to do so, for there is much to learn every day, regardless of the place of learning. But if you have your choice, and feel that your time for preparation is limited, take the mill every time. In conclusion let it be said the textile school is not receiving the co-operation of some of the most influential mills. If the mills are looking for the best men, they must encourage the factors which are attempting to place the best available men in the field.

USE OF THE RAILWAY HEAD.

BY W. F. H.

In the first place it should be noted that the railway head as used at the head of a section of old style cards was intended to deliver a comparatively even sliver to the next process, or first process drawing frame. Seven cards usually delivered their slivers by means of a traveling apron to the railway head. In case one or two slivers broke from any cause and ceased to travel to the railway head, the head continued to take up the five or six slivers and by automatically changing the draft, slowing down the front roll by means of the cones, continued to deliver a sliver of about the desired weight.

When the revolving flat card came into use, it was impossible, in the first place, for any railway head to take up the slivers as rapidly as they were delivered from the cards. The railway head if used at all must, therefore, be adapted to take the slivers from cans. The back of the head was then fitted with a stop motion to stop the head for a broken end. The evening mechanism had thus to take care of variations only in the aggregate of the slivers as the stop motion took care of the absence of a whole sliver. It has been found after long experience in the mills that the evening mechanism on the old head was too cumbersome and slow to even slight variations in the slivers, and that the results did not pay for the extra labor and attention necessary in running this complicated mechanism.

The new style railway head now in use is the result of a systematic effort to provide a simple, rapid and delicate evening mechanism that will take care of slight variations of sliver. It is now employed on all classes of work from very coarse to very fine yarns. In "duck" mills these heads are in use as the only process between the cards and slubbers, with results much superior to the old method using two processes of drawing, the yarn being much evener and stronger. For print cloth and sheeting yarns, two processes, namely, railway heads and drawing have been found to be an advantage over three processes of drawing, the sliver being evener without being overdrawn. Overdrawing makes the sliver tender and slippery and thus produces uneven and weak yarn.

As the next process to combing the railway head is very valuable. The evener being sensitive and quick acting takes care of the short uneven places in the slivers, unavoidable in combing, and dispenses with one process of drawing. The chief advantage obtained in operating these heads may be stated simply: The evening does away with the necessity in a measure of doubling. In a third process of drawing, for the sake of the doublings, it often happens that more is lost by making the sliver tender and slippery than is gained in evenness by the doubling. In point of production, roughly speaking, one head will take care of the product of three revolving flat cards. The floor space occupied by the railway heads in operation, that is, including the space occupied by cans, will give about the same product as the space occupied by the required number of drawing frames; two railway heads occupy the space of three deliveries of drawing, besides, in many cases, doing away with one process of drawing.

Any number of railway heads can be embodied in one frame and yet each head remains entirely independent in

all its movements. Each stop motion on a six-delivery drawing frame operates or stops six deliveries; on a railway head of six deliveries, one stop brings up but one delivery, the other five continuing at work, making a large saving in stoppages. The successful operation of railway heads necessitates more careful and intelligent oversight than does the operation of the same number of deliveries of drawing, but the average overseer of carding, if he takes any interest in his work, can run a line of railway heads with no more help and with as little trouble as the same number of deliveries of drawing and will produce more and better work.

In the best regulated mill more or less uneven laps are made every day. This added to the uneven slivers from the cards through stripping out causes a large aggregate of uneven work. It is an advantage to even up this work on the first following process, and the railway head in my opinion will do this more accurately than will the drawing frame. The whole machine of the latest improved railway head has been very much simplified; there are about half the number of gears employed that were used on the old machine; the evening mechanism is on the table or beam instead of underneath as in the old one; the front roll runs at a constant speed and the evening mechanism operates to vary the speed of the back roll and not the front. There is no mechanism under the table to get out of order or to adjust. Top rolls are independently weighted exactly as on the drawing frame. Top rolls, both metallic and leather covered run in stationary bushings at each end on which the weights are hung, which does away with all friction on the weight hooks.

Calender rolls and the coiler are driven directly through the front roll as on a drawing frame and not by the cone or evener belt as on the old railway head. The cone belt drives only the two back rolls. The calender roll change gear is compounded on the intermediate, enabling one to make finer changes in tension of the sliver between the front roll and the calender roll.

In conclusion, the writer has made practical tests in the mill under varied conditions and has demonstrated the success of the railway head and where three-yard weighings of sliver from the drawing frame would vary as much as 15 grains, the railway head will produce, under the same conditions, work that will vary not more than two grains.

SYSTEM AS APPLIED TO COTTON MILLS.

BY K. T. J.

It is an undisputed fact that nearly all of the cotton mills—both large and small—suffer to some extent in some way from lack of proper system and neglecting to look after the little things that grow to be very large by the end of the year. The manufacture of cotton is like all other enterprises in that the profitable use of invested capital is the chief aim, and while its management differs in some respects, yet its mission is the same, namely that of money making.

There was once a time when under ordinary conditions a mill could very easily be made to yield a very respectable dividend, but as the market conditions have changed so much of late, and the margin of profit has become so small, unless the little things around a mill are watched and all the leaks stopped, the result will be loss instead of gain. I don't believe that any fixed rule can be laid down in the management of mills, as the surroundings and local conditions at one mill are generally different from those of others, and a rule that would prove good for one mill might fail in another. But the point I wish to make is that if the management of a mill will adopt a system that best suits his requirements, and one that will enable him to bring his cost per pound to the lowest possible figure, and watch it and keep it there, he will find a good many things that added cost to the mill that could be avoided.

I have visited a good many mills in my twenty years of mill experience, and I have yet to find one which I thought could not improve its system of management. In some of the mills visited, I have found that the superintendent was an able manager, but had his hands tied in that he had to go according to the dictating of some one above him; and in some I have found that it was just the reverse. I was on a little trip of inspection some time ago as I have always made it a rule to keep posted on the way the other fellow does things; and at one of the mills visited I happened to find the superintendent in the boiler room helping, he thought, to keep steam, and after introducing myself, I explained my business and began to ask him questions. First, how much horsepower his plant was capable of supplying; second, how many horsepower it required to run his mill, and how much coal he was burning per horsepower per hour; and he said he didn't know. I noticed he had two kinds of coal in his bin, and I asked him which kind he found to be the more economical, and he said he had not given it any investigation. I said: "My friend, if I were you I would get some good scales and place in my boiler room and weigh every pound of coal that is burned each day; I would also weigh the cinders, and then I would be able to decide which was the better coal for my plant."

He happened to be having quite a hard time keeping steam, and after looking into his furnaces I told him I thought his trouble lay in the furnaces themselves for they were badly in need of repair. I also noticed that the only way he had of supplying his boilers with water was with a very badly used pump, that was continually getting out of order, so as he had two more pumps, one a fire pump and the other for his humidifiers, I suggested that he connect these pumps together, and have them so he could put water into his boilers with either one if it became necessary.

I noticed that it required a large portion of a negro's time to stand and pour cylinder oil into the pump to keep it going and he wasn't a bit stingy with the oil, so I suggested that he put a mechanical oiler on the pump, and use a cheap cylinder oil to lubricate it, and he would greatly increase the capacity, cut out the cost of the negro, and effect a large saving in oil.

I then took a look at his engine, and it didn't appear to be running as smoothly as it should, and I found, upon making inquiry that it hadn't been indicated and the valves hadn't been set for something over a year. So I suggested that if he would have his engine gone over at least once each month, and the valves set properly, and the bolts and parts kept tight, he would get better service, and have less chance for accidents. He had an electric drive, and one with which I was familiar, and I saw at a glance at the watt meter that his load was something like 700 horsepower.

I asked him if he knew how many horsepower it required to run each department and he said he didn't, so I advised him to take each department separate and test the load, and make a record of the horsepower required, and then have his shafting oiled, leveled, and lined, and the rust and gum scraped out of his hanger boxes, and he would find that his coal bill would be greatly reduced.

It was in cold weather that I was visiting at this mill, and I stayed over night, and went through the mill next morning. As I noticed that the help were having a very hard time getting their work started up, and especially so in the weaving room, as the threads seemed to be breaking worse than usual, I went to hunting for the trouble, and found that the superintendent heated his mill with hot air blown into the mill with a fan which was started about midnight and the heat and air from the fan dried out all the moisture in the room so that it made the threads very brittle. I suggested that if he would throw out the little belt driven humidifier pump and replace it with a good steam pump, and start it every morning at least two hours before time to start the mill he would increase his production, improve his quality, and keep his help better contented. I was unable to find any record of what they had been doing around the power plant, so I suggested to my friend, the superintendent, that if he would keep a daily record of the pounds coal used; the cinders taken from under the boilers; the amount of the different kinds of oil used; the labor cost; the coal used per horsepower; the supplies used; and the cost per horsepower per day, he could by proper management reduce his cost per horsepower and also detect any change in cost that might come about and the cause of it.

THE ONE GREAT PROBLEM.

BY J. C. E.

There are many subjects of interest being discussed through the columns of your valuable paper, such as management of card, spinning, and weave rooms, and running a mill, etc., but when all these subjects are sounded down to fundamental facts, they are summed up into two very significant words, namely, management of help. I do not mean to imply that there are no other factors of importance connected with the successful operation of a cotton mill, such as setting up certain machines correctly, making necessary changes, calculations, etc., but I contend that these are facts upon which overseers and superintendents are on an equal basis. If one is not as proficient as another, it is his own fault, for all of these are technical points, and may be mastered by any one with a little study and self sacrifice. They are points which a superintendent presumes an overseer thoroughly understands when he places him in charge of a department.

On the other hand the subject of management of help is one of grave importance. It is in my opinion a subject as far removed from a technical education as one can imagine. It is a subject we can not master from our best writers even were they the best managers. We can only accept their suggestions and work them into our lives, and make them a part of our natural selves, for many suggestions may not accord with our temperament or natures as we are. We are all agreed that the ideal manager is one who controls his help and assistants in such a manner as to be popular with all, who gets the best service they are capable of giving, and at the same time keeps them contented with their surroundings. This is easily said but to be accomplished requires the knowledge of how and when to be severe, but never tyrannical or revengeful; of even temper but not too sociable.

To begin with, overseers and superintendents should not reside in the immediate vicinity of their help. It is not a good idea even for the second hands to do this, for the parents will seek them at their homes about trivial matters, until their presence becomes obnoxious, and causes the second hands to treat them harshly; then ill feelings ensue. And besides, when off duty this time should be for recreation, and it is well for one to throw off his burdens during that time. Furthermore, a man can talk mill business better at his desk.

I spend much of my time instructing my assistants as to correct management of help, appearance of the room, operation, and setting up of machinery, in order to keep everything in first-class shape, and I hold each man responsible for his job, without giving him authority to discharge any of the help. On the other hand I give my help to understand that I stand back of my men so long as they are in the right, and when I have to reprimand one of them I do so quietly, with an even temper and when we are alone ,so that no one else knows of it. This leaves me time to walk around the room speaking to a hand here and there, and instructing them where possible as to a quicker, easier or more correct way of performing their duties, reprimanding lightly one who is negligent, and severely when needed, though it is a good policy to call the attention of the second or section hand to trivial matters found in this way, so that they will learn to watch and remedy them in the future. In this way you will find after a time that your assistants are practically running the room, and relieving you of many small details.

An overseer can spend some of his time to good advantage of looking after the welfare of his help, inquiring about some sick one, or complimenting another on good work and behavior. However, do not spend too much time in this way, as your presence may worry your assistants if they have too much of it. Do not be too sociable with any one. An overseer's position anywhere demands some sacrifice of his privileges. He must be very careful of his associates, but courteous to all.

Some writers harp on the fact that they see the meanest and worst help on as good work or even better than the good help. I for one contend that there should be no discrimination. Give all a square deal. Of course the old deserving help should have the choice of frame sides or looms; but if a hand is good enough to work for me he is due and receives my impartial consideration. When a parent puts a child under my care I try to treat it as my own. If it is a good one I try to keep it so. If it is a bad one I try to make a good one out of it. If I find this impossible after exerting every energy I discharge it. Above all things be master of your position. If you have only one hand, control that one. Always be ready to deal with any difficulty which may arise, in a way that will show the help that you are master of the situation. They always have an eye on you. Keep ahead of your job; not behind it.

NEW MACHINERY AND TRADE NOTES.

ARLINGTON MILLS DRESS GOODS.

At the organization of the Arlington Mills in 1865, the product was chiefly plain and plaided poplins. In 1869 at the American Institute Exhibition their exhibit included not only poplins but serges, reps and coburgs. No men's wear, worsteds or white goods had then been made in this country. In 1872 the Arlington alpacas were introduced, first in the lower grades and gradually increased to 14 different qualities.

In 1876 at the Centennial Exposition at Philadelphia, the Arlington Mills were one of two American exhibitors of dress goods which were greatly admired by foreigners. The mills secured an award for black alpacas, brilliantines, figured mohairs, and Roubaix poplins which being of recent introduction reflected great credit on the manufacturers. A high ambition, iron perseverance and a liberal expenditure in experiments, alone made this victory possible.

Experimenting with every variety of wool and its combination with cotton and silk led to the possible production of an innumerable variety of fabrics, both cheap and expensive. To show an exclusive pattern in a new combination was the foundation of what is commonly called "fashion" which starting by providing a new style of goods for a few leaders brought about a more or less popular demand depending on price and wearing qualities, as well as on the wonderful combinations of color and weave. To follow the fashion in the production of the goods demanded was expensive, but this only led to the designing of new styles even if their production required an entire re-organization of the weaving and other departments.

There is no doubt that the success of the Arlington Mills in the dress goods department has been very largely the result of producing whatever style might be demanded in its highest type of perfection without regard to the new machinery and re-organization made necessary.

Dress goods in their manufacture are divided into three general construction classes, namely, piece-dyed, cross-dyed and yarn-dyed. None of these classifications is discussed at the sales counter. Fashion or the popular demand divides this product into two other classes which are rarely mentioned in retailing dress goods. These classes are staples, meaning goods that are in continuous demand and which are kept at the same quality and weight regardless of the fluctuations of cost; and fancies which include the novelties and for which some new name must be devised.

The staple goods which are made specialties by the Arlington Mill include brilliantines, batistes, cashmeres, cheviots, mohairs, nun's veilings, panamas, imperial serges, storm serges, shepherd checks, sicilians, taffetas, voiles, etc. These staples come from all three of the construction classes. Fancies have names that hold for a long period in some cases. Those which obtain their peculiar effect from the weaving, like brocades have constantly changing patterns as well as coloring. Stripes, checks and plaids in their infinite variety are produced by combinations of colors.

A large part of the entire product of the Arlington Mills dress goods department consists of special patterns which are exclusively made for the originator and are not sold to other parties. Large quantities of both staple and fancy products are put up in special forms for the manufacturing trade in clothing, automobile cloths for garments as well as for tops, curtains and seat coverings.

To produce this infinite display of fabrics requires nearly all the varieties of combing wools that grow, and their selection and combination are made by experts of long experience. The best mechanical skill is demanded in producing such a variety of goods in width varying from 28 to 56 inches, and the fast colors and attractive combinations of color in the fancy productions are only made possible by the highest skill and chemical knowledge in the dyeing department.

FIBROUS PACKING SPOOLS.

The increased cost of all articles made from wood has led to improvements in the manufacture of "fiber" so that many articles formerly made of wood almost exclusively are now produced from "fiber." In many cases, not only is it possible to offer an article that costs less, but with the additional advantage that it is better adapted for the purpose for which it was intended.

In the production of spools for the use of textile manufacturers whether for yarns, or narrow fabrics, it is found

MARSHALL SON & CO'S. FIBROUS PACKING SPOOLS.

that spools constructed entirely of fiber are quite as satisfactory as spools made of other materials.

A spool made of fiber does not tend to warp and the material is not apt to be split or broken; it weighs less and a given quantity of material can be packed and shipped in less space and at less cost than in most other ways. The weight of a fiber packing spool is said to be from 15 to 40 per cent. less than a wooden spool for the same purpose. The illustration shows fiber spools made by Marshall, Son & Co., Inc., of Boston, Mass., who report a satisfactory and increasing demand for regular and special styles and sizes.

ONEIDA STEEL PULLEY CO., Oneida, New York, Catalogue, "ONEIDA" Steel and Wood Pulleys, including specialties. Illustrated. 48 pages, 6 x 9. Paper. A copy may be obtained by addressing the Company.

BIRCH BROS. OPEN SOAPING MACHINE.

This machine, as shown in the illustration Fig. 1, is used especially in the finishing process for ginghams and madras cloth, and consists of one or more tanks, usually five to eight in number depending upon the class of goods it is desired to treat. These tanks are shallow, to facilitate the threading and handling of the goods as they pass through the machine and for the purpose of saving soap, steam and water. By the use of shallow tanks a man can thread up an end in almost boiling water without having to run the tanks off, whenever an end breaks.

Usually all the tanks, except the last one, are washing or soaping tanks while the last one is a cleansing tank to cleanse the soap from the cloth. At first sight it would appear that owing to the shallowness of the tanks the cloth would not be sufficiently treated, but to offset this—and this is the crux of the machine—instead of using ordinary guide rollers in the tanks a series of patent flushing rollers is set a pair of improved spiral opening rollers to take out the scrimps and curled selvages that may happen in the cloth. The machine is used very largely and is especially adapted for ginghams, madras, shirtings and print goods. It is manufactured by Birch Bros., Somerville, Mass.

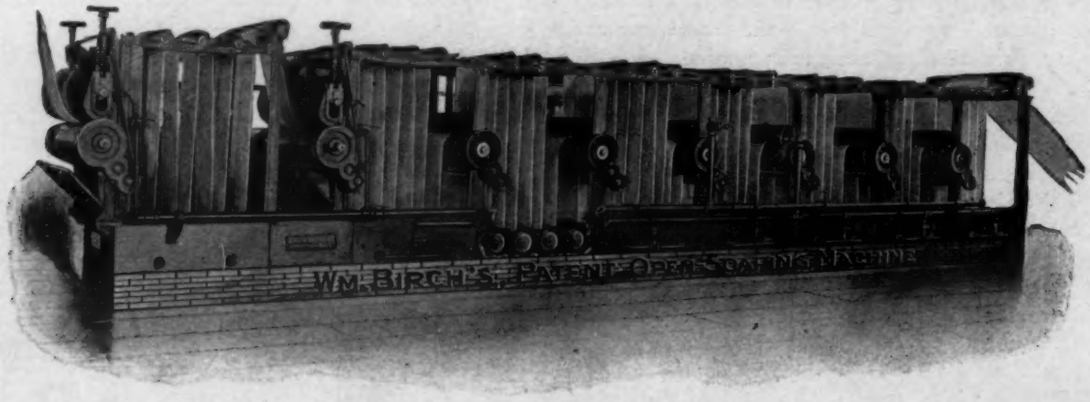


FIG. 1. BIRCH BROS. OPEN SOAPING MACHINE.

is used, which automatically pump and suck the liquor through the cloth without violent agitation and without the creation of suds. These patent flushing rollers with their enormous flushing capacity force 300 gallons of liquor per yard of cloth in an eight-tank machine. Thus if 50 yards per minute be the speed of the cloth, the machine will flush

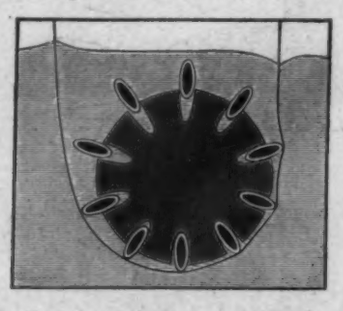


FIG. 2. AN ENLARGED VIEW OF A FLUSHING ROLLER, USED ON THE OPEN SOAPING MACHINE.

15,000 gallons per minute, or for 100 yards travel, 30,000 gallons per minute will be flushed. As stated these patent flushing rollers do not beat the soap into suds which have no cleansing property, nor do they rub against the goods to chafe them, but quietly and effectively force the soapy water through the cloth without undue agitation.

There are eight pairs of draw rollers in an eight tank machine, the last two pairs being equipped with heavy nips for squeezing purposes. In front of each draw roller

THE TRUTH ABOUT THE PSARSKI DYEING MACHINE.

EDITOR COTTON: Referring to the article in the American Wool & Cotton Reporter, "Defects in Dyeing Machines," I am compelled to say that the author of this article is not familiar with the apparatus of my system, is not familiar with the so-called Vacuum, and has never seen an Obermaier, Cohen or Essex machine, or, if he has seen them, has never understood them. Besides this, his statement about the difference between applying sulphur, vat or direct colors, shows that he never had any idea what the different colors and ways of applying are. It is not my intention to criticise any dyeing machine or apparatus. I will only explain the different ideas, more or less, in use for coloring different fibers and states of it.

Taking the Obermaier apparatus mentioned in the article: It is a single, circulating machine, distributing the dye liquor from the center, through the material, and the perforated walls of the apparatus. The material being packed in the apparatus, dry or wet, is next compressed with the lid, and the dyeing operation is started. What happens then? Channels, more or less. Every practical dyer of colors is acquainted with the fact that materials when brought up to the boiling point or heated, shrink, and in shrinking will shrink to the center, which means that the entire batch in the machine will shrink from the top and bottom to the center, and in these two particular places will offer less resistance to the flow of the dye liquor. The more compression there is inside of the apparatus the quicker the two weak points will split into channels.

Now we will take up the question of cooling down the batch of material that is in the apparatus: So long as the material is under the action of the heat, the pores are open, but the minute that cold water enters the apparatus the material starts to become very compact, the pores being closed, and offers a great resistance to the rinsing water. What follows? The top and bottom being the weak points, and already channeling, the cold water will convert the channels into the open spaces through which the water flows without penetrating the material; and this is why

hosiery dyed with sulphur black is always tender. The fiber is simply destroyed in time by the action of sodium sulphide that was not washed out of the goods.

The fact mentioned above is well known to the manufacturers here and in Europe, therefore it is not necessary for me to go further into the matter. The Obermaier apparatus, having distribution of the dye liquor one way, from the center to the sides, can be called an "Apparatus with single flow of dye liquor from center to sides by pressure, or from the sides to the center by suction."

In comparing the Vacuum machine with the Psarski apparatus, the author says, "One is struck by the remarkable similarity of the two machines." The "one" who is struck by the remarkable similarity must be really only one, and that "one," I believe, is the nameless author. In the Vacuum mentioned, the material is placed between the perforated top and bottom, having the flow directed through the perforations, and the material between them. It is a machine, like the Obermaier, with single circulation, and nothing can prevent channeling, because the material, being treated with cold and hot liquor, shrinks from the sides to the center, leaving spaces between the material and walls of the machine, spaces free for circulating the rinsing water or dye liquor used in subsequent treatments, as, for example, alizarine colors on wool, and developed or sulphur colors on cotton. You will see from above that channeling, being parallel to the flow of the dye liquor, and being nothing else but the result of shrinking of the material, can not be stopped by any means except the flow combined with compression in opposite directions.

Material that is packed in the Psarski apparatus shrinks by the first action of the dye liquor, but is forced by the compression of the pump from the center against the walls of the machine, which prevents channels, and is compressed from the bottom against the cover, preventing channeling, in other words, the whole mass of material is compressed against the perforated outlet openings in the cover of the machine, and must be penetrated uniformly before the dye liquor escapes from the apparatus, also stopping every chance of channeling. Even more, if channels are formed in the machine by excess steam, or from thick dye liquor, they will be stopped in a few minutes, owing to the compression against the walls and cover.

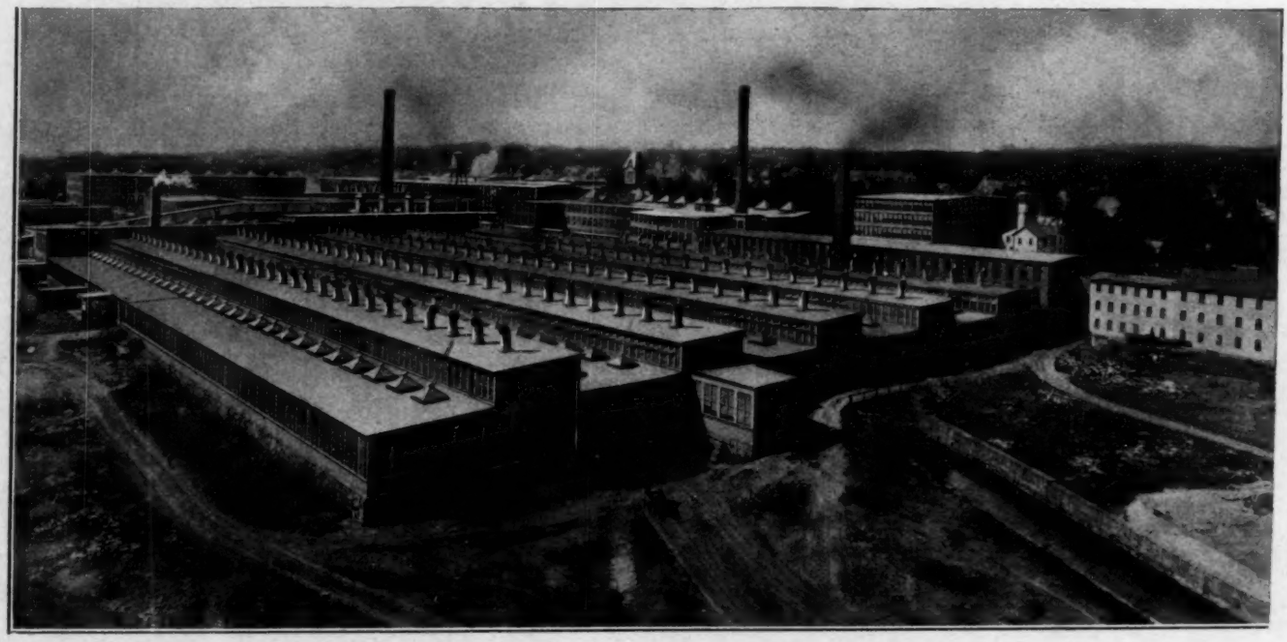
I can not understand why, in the beginning of that article, I and my company are named professional promoters and arrogant advertisers. We sell our large size machine as 500-600 pounds capacity. Our customers have so far done 900 pounds of worsted tops in one batch. We sell our next size machine as 250-300 pounds capacity. From 375 to 400 pounds of hosiery have been dyed in a single batch. We advertise our machine for top dyeing, which we do very successfully. The fiber is not matted or felted, and does not need re-combing. It also saves a great amount of labor, steam and dyestuff.

The same thing applies to hosiery. The hosiery is placed in the machine without singeing, in bundles of one to five dozen, in the same condition as they come from the knitting room. The batch is dyed, diazotized, developed and softened, and goes straight to the finishing room, avoiding sorting. Besides this, the hosiery is not ruffled or roughed up, and has no nap on it, therefore needs no singeing, which means a saving of 40 cents to the hundred. In other words, hosiery after coming out of the Psarski dyeing machine is in as good condition as when it comes from the knitting machine.

About the newness of my invention I am not going to argue. If the system is recognized by the government patent experts of 13 different countries I believe it speaks for itself, therefore it is not necessary for me to get into any argument. I do not believe it is necessary for me to discuss the results obtained from dyeing in the Psarski machine. There are plenty of them in operation, and my advice to such critics, as above mentioned, is to study first and argue next.

JAN. T. PSARSKI.

WILLIAM HOWARD PAINE, 620 Industrial Trust Bldg., Consulting Engineer, Providence, R. I., has issued cards to his friends and clients wishing them a happy and prosperous New Year.



SKY VIEW OF THE WORKS OF THE DRAPER CO., HOPEDALE, MASS.

THE MANUFACTURE OF SHUTTLES.

Shuttles were made in this country as early as 1825, and the business started then has been continued under many different names. In 1872, S. A. Dudley of Taunton, Mass., entered the business, and since 1884 has conducted it under his own name. His new factory recently completed is equipped with every appliance known for producing a perfect shuttle. Many of the machines are the invention of Mr. Dudley.

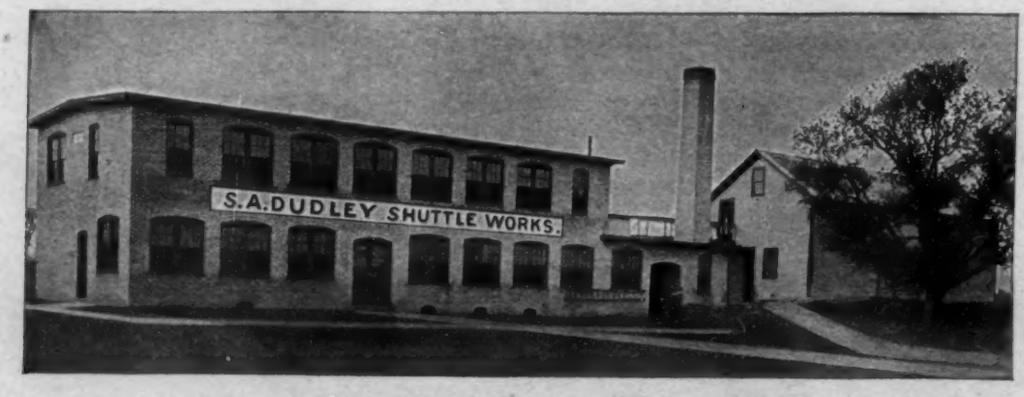
As one of the oldest shuttle manufacturers, Mr. Dudley is the inventor of the "Dandy" Shuttle spindle and "Dudley's Hand Threader Shuttle," two of the most vital features of a satisfactory shuttle. The maker claims that the "Dandy" spindle never gives any trouble, is quickly and conveniently operated and is practically indestructible.

Dudley's Hand Threader Shuttle will suggest itself for those who not only seek to use machines and appliances that will produce the most in a given time, but who realize that the highest degree of hygienic attainment in all processes and conditions tend to the largest and most perfect product. The maker believes that this shuttle is mechanically perfect. With no possibility of the thread flying out, this shuttle leaves nothing to be desired in the way of perfect work with the greatest production. It is attractive to the best and most skilful weavers on any loom, because its use is without any menace to the health of the operative. Mr. Dudley reports an increasing demand and a promising outlook. Sample shuttles will be sent upon application, and inquiries for shuttles for special purposes will have careful and prompt attention.

MODERN METHODS OF DISTRIBUTING MILL PRODUCTS.

Announcement was made some time ago that the Bush Terminal Co., New York City, was preparing to put into operation the first union shipping establishment ever created in this country, and the idea will now receive a practical test by virtue of a lease made recently between the Bush Terminal Co. and the Holeproof Hosiery Co., of Milwaukee, Wis. The stock of the latter will occupy 1,200 square ft. in Union Shipping Building "A," at the foot of Fiftieth Street, South Brooklyn, N. Y.

It is the plan of the Bush Terminal Co. to relieve the tenants of its union shipping buildings of all responsibility regarding the shipping operations from the moment the goods are received in bulk, to the time that they are sent out in small lots to customers of the client. A trained shipping force has been engaged, and its duties will be assigned with the idea that one set of clerks can take charge of the receipts, orders, and shipments of 100 firms as easily as for one firm. Tenants of these buildings will consider the Bush plant their own New York distributing center to which they will ship the entire output meant for Eastern consumption from their various factory locations. The Bush Terminal Co. will fill all orders in the same manner as though the tenant had a wholesale room of his own with his own force of employees. In the case of the Holeproof Hosiery Co., the finished product will be received at the new shipping room from Milwaukee, and all Eastern customers will be supplied from the Bush Terminal Co.



NEW SHUTTLE FACTORY OF S. A. DUDLEY, TAUNTON, MASS.

COLUMBIAN ROPE CO., Auburn, N. Y., states that rope drives appear to best advantage in comparison with other methods of driving under the following conditions: (1) where large amounts of power are to be transmitted; (2) where safety from fly-wheel breakages or long shutdowns are strong considerations; (3) where future growth is to be considered; (4) where centers of driving and driven shafts are close together or at a considerable distance apart; (5) where driving and driven shafts are not parallel; (6) where quietness and absence from electrical disturbance are desired; and (7) due consideration should also be taken of the small width sheaves required for the amount of power transmitted, the absence of slip, steadiness of running, small first cost and economy of maintenance.

THE OLMSTED-FLINT CO., with its principal sales offices at No. 136 Liberty street, New York City, and a branch house at 1026 Arch street, Philadelphia, is a new firm of belting manufacturers who have just entered the field. It is expected in the near future that branch houses will also be established in Boston and Chicago. The incorporators of the new company are Willard I. Olmsted, Stanley B. Flint and George S. Baker. The new belting concern, it is understood, has taken over a large belting factory in Philadelphia for the manufacture of its leather belting. In addition the firm will also manufacture and sell a complete line of rubber belting, canvas stitched belting, balata belting and solid woven belting. The Olmsted-Flint Co. will also represent exclusively in the United States several large European manufacturers of belting and transmission specialties.

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This is shown by the fact that in the eleven weeks ending November tenth we received orders for

6673 NORTHROP LOOMS

About five-sixths of these are to replace old looms. About two-thirds are in the North and one-third in the South. Nearly all are repeat orders.

They include looms for weaving wide and narrow sheetings, drills, denims, tickings, chambrays, seamless bags, pillow tubings, corduroys, jeans, ginghams, light ducks, fancy goods, etc.

DRAPER COMPANY

HOPEDALE, MASS.

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